

# The Mining Journal,

## RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

[The MINING JOURNAL is Registered at the General Post Office as a Newspaper, and for Transmission Abroad.]

No. 2532.—VOL. LIV.

LONDON, SATURDAY, MARCH 1, 1884.

WITH SUPPLEMENT. PRICE SIXPENCE BY POST, 21 4s. PER ANNUM

**MR. JAMES H. CROFTS, STOCK AND SHARE DEALER,**  
No. 1, FINCH LANE, CORNHILL, LONDON, E.C.  
ESTABLISHED 1842.

BUSINESS transacted in all descriptions of MINING Stocks and Shares (British and Foreign), Consols, Bonds (Foreign and Colonial), Railways, Insurance, Assurance, Telegraph, Tramway, Shipping, Canal, Gas, Water, and Dock Shares, and all Miscellaneous Shares.  
BUSINESS negotiated in Stocks and Shares not having a general market value.

Every Friday a general and reliable List issued (a copy of which will be forwarded on application), containing closing prices of the week. MINES INSPECTED.  
BANKERS: CITY BANK, LONDON—SOUTH CORNWALL BANK, ST. AUSTELL.  
TELEPHONE NUMBER 1003.

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50 ditto, 17s. 6d. paid. 20 Gunnislake (Glitters). 65 Pestarena.  
100 Almad. 100 Hingston Down. 20 Rio Tinto.  
25 Bratsberg. 150 Hoover Hill. 75 Ruby.  
75 Bwlich United. 50 Home Mines Trust. 25 Richmond.  
65 Cankim Bamoo. 50 Hony & Treasny. 20 Roman Gravel.  
20 Carn Camborne. 50 Indian Consolidated. 20 South Caradon.  
50 Callao Bis. 100 Indian Glenrock. 20 South Condurow.  
50 Chile Gold. 70 Javali. 50 South Darren.  
100 Colombian Hydraulic. 80 Kapanga. 100 South East Wynad.  
100 Consolidated. 50 Killifreth. 50 South Devon United.  
50 Californian. 50 La Plata (New). 150 Sortridge (offer wtd.).  
50 Colorado. 50 Last Chance. 50 Tambracherry.  
30 Canada Copper. 20 Leadhills. 50 Treasny.  
50 Chontales. 150 Lisbon-Berlyn. 20 Tolima A.  
25 Cor. So. Austr. Cop. 55 Marke Valley. 30 ditto B.  
50 Denver. 10 Michipicoot. 10 Mon.  
50 Devala Moyer. 80 Mounts Bay. 25 Treasny.  
20 Devon Consols. 80 Mysoor Gold. 25 United Mexican.  
50 Devon Friendship. 75 New Caradon. 50 Victoria Gold.  
50 Devon United. 50 New Callao. 20 Van.  
10 Dolcoath. 50 New Emma. 10 Wheel Basset.  
50 Don Pedro. 25 New Quebrada. 25 West Callao.  
50 Drakewall. 150 North Blue Hills. 50 West Phoenix.  
50 Duchy Peru. 20 New Kitty. 90 West Caradon.  
50 East Blue Hills. 75 Nouveau Monde. 20 West Orebtor.  
50 Eberhardt. 20 North Penstruthal. 20 West Polbreen.  
50 East Caradon. 25 New West Caradon. 50 West Poldice.  
80 East Craven Moor. 75 Old Shepherds. 50 Wheel Coates.  
40 East Lovell. 50 Organo. 25 Wheel Orebtor.  
75 East Wheel Rose. 50 Orita. 25 Wheel Jane.  
80 Ecton. 25 Penhalls. 35 Wheel Kitty.  
50 Flagstaff. 80 Potosi. 35 Wheel Silver & Lan-  
50 Frongoch. 80 Port Phillip. 80 Wynad Perseverance.  
50 Frontino. 70 Parya Copper.  
50 Goginan. 50 Phoenix United.  
50 Gold Coast. 50 Phoenix United.  
40 Grogwinion. 50 Phoenix United.

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**RAILWAYS—SPECIAL BUSINESS.**—Fortnightly Accounts opened on receipt of the usual cover.

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**FOREIGN BONDS—SPECIAL BUSINESS.**—Fortnightly Accounts opened on receipt of the usual cover.

JAMES H. CROFTS, 1, FINCH LANE, LONDON.

**AMERICAN AND CANADIAN STOCKS AND SHARES—SPECIAL BUSINESS.**

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50 Bratsberg. 50 Frongoch. 200 Potosi.  
25 Bedford United. 50 Frontino. 100 Prince of Wales.  
100 Carn Camborne. 30 Great Holway. 10 Roman Gravel.  
20 Carn Brea. 100 Home Mines Trust. 100 South Caradon.  
200 Chontales. 150 Indian Consolidated. 20 South Condurow.  
120 Chile Gold. 25 Killifreth. 100 South Devon United.  
40 Colorado. 20 Leadhills. 50 South Darren.  
100 Californian Gold. 120 La Plata. 50 Treasny.  
15 Copiapo. 70 Lisbon-Berlyn. 25 Tolima B.  
150 Callao Bis. 70 Montana. 50 Transvaal Gold.  
5 Cook's Kitchen. 50 Marke Valley. 10 United Mexican.  
50 Canada Copper. 100 Mounts Bay. 50 West Godolphin.  
3 Dolcoath. 15 Miners. 20 Wheel Grenville.  
100 Devon Friendship. 50 New Callao. 10 West Kitty.  
20 Devon Consols. 50 N. Trumpet Consols. 15 Wheel Basset.  
50 Duchy Peru. 35 New Kitty. 70 Wheel Coates.  
100 East Wheel Rose. 200 Nouveau Monde. 70 Wheel Orebtor.  
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N.B.—Prices of the above on application, or offers may be made. Several

of shares in this list are for sale under market quotations.

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Gold. 15 New Kitty Tin. 15 Treasny.  
25 Carn Camborne Tin & 50 New Caradon Copper. 120 Tankerville Gt. Con.  
Copper. 75 Port Phillip Gold. 50 Treasny Copper &  
50 Chontales Gold. 50 North Blue Hills Tin. 50 Tolima A.  
50 Corporation of South 50 New Callao Gold. 10 Untd. Mexican Silver.  
Australia Copper. 60 Old Shepherds. 40 Victoria Gold.  
25 Cartago Gold. 60 Organo. 20 Western Andes.  
50 Devon Friendship. 60 Orita Gold. 200 West Callao Gold.  
1 Dolcoath Tin. 50 Prince of Wales. 50 West Caradon Copper.  
50 Duchy Peru Silver-ld. 60 Potosi Gold. 50 West Polbreen Tin.  
100 East Rose Lead. 75 Port Phillip Gold. 50 West Gonamena Cop.  
60 East Blue Hills Tin. 50 Parya Copper. 15 West Kitty Tin.  
25 Ecton Copper. 15 Richmond Silver. 100 Wheel Jane Tin.  
80 Gold Coast. 10 Roman Gravel Lead. 30 Wheel Orebtor Copper.  
50 Home Mines Trust. 100 Ruby. 30 West Orebtor Copper.  
50 La Plata Lead. 100 Sortridge Copper and Tin.  
20 Leadhills. 60 South Kitty Tin.  
50 Lisbon-Berlyn Gold. 60 South Kitty Tin.

The CURRENT QUOTATIONS appear in the Leading Article of the MINING

JOURNAL, and, in order to save unnecessary correspondence, customers are in-  
vited to make offers either to BUY or SELL shares at prices based on these quo-  
tations.

TEN PER CENT. DEPOSIT.—Many of the above shares can be sold for

settlement by arrangement at the middle or end of April on payment of

10 per cent. deposit. Shares not found in the above list may be purchased on

application.

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90 Californian. 60 Kapanga. 25 South Darren.  
50 Callao Bis. 30 Killifreth. 70 Treasny.  
25 Carn Camborne. 150 Kohinoor B. 20 Treasny.  
15 Chile Gold. 50 La Plata. 50 Transvaal Gold.  
80 Chontales. 200 Old Shepherds. 15 Tolima A.  
30 Clitters. 20 Leadhills. 50 Tamar.  
75 Colombian. 30 Lisbon-Berlyn. 30 United Mexican.  
50 Colorado. 100 Mounts Bay. 15 Van.  
30 Cor. So. Austr. Cop. 50 New Emma. 100 Victoria Gold.  
50 Devon Friendship. 80 New West Caradon. 60 West Callao.  
100 Devon Consols. 100 Nouveau Monde. 55 West Orebtor.  
45 Duchy Peru. 80 Orita. 40 West Polbreen.  
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Mr. REYNOLDS refers to his remarks on page 247.

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50 Carn Camborne. 100 East Blue Hills. 60 Old Shepherds.  
30 Devon Consols. 60 East Wheel Rose. 70 Prince of Wales.

SHARES WANTED:—

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40 Ecton. 100 Old Shepherds. 60 Victoria.  
90 Home Mines Trust. 40 Prince of Wales. 30 Wheel Orebtor.

Sellers should state whether for cash or account, and name their price.

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Refers to his Share Market Report on page 251 of to-day's Journal.

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holders' meetings prove beyond doubt. During the last 40 years there has no

such opportunity presented itself as the present for investment in British mines.

Metals are



## MODERN PROGRESS IN MINE ENGINEERING—No. I.

BY H. BRAMALL, M. INST. C.E.\*

In accord with the custom which has obtained in this society, it becomes my duty as retiring President on this the last evening of the Session to address you on some engineering topic. In selecting a subject I have been guided by the practice of previous occupants of this chair, who I find have adopted one of two courses—either to pass in review the principal important works in progress or completed at home or abroad during their year of office; or confining themselves to that particular branch of the profession with which they may have more especially identified themselves to relate what is of most interest as exemplifying the progress made in that branch. But Mr. Brunles, the President of the Institution of Civil Engineers, in his recent address, took the first course, and so ably and so exhaustively has he dealt with the subject that should I follow the same line I could only repeat what he has already said with far greater ability, and so I will adopt the alternative course, and I purpose to treat of that important branch of civil engineering with which I am most familiar, and to speak to you of the progress which in modern times has been made in mine engineering.

Before commencing to win a mineral deposit some preliminary research is usually required, and this, more particularly in the case of a bed, is effected by deep boring. From very early times this has been done by a chisel fixed to rigid iron rods, motion being imparted by manual labour, aided by a spring pole, and for moderate depths this system, improved by substituting a lever worked by an engine for the pole, is still much in use, and is the most economical. When greater depths were attempted the repeated breakages of the rigid rods became a serious hindrance; but this difficulty was overcome by the invention of the free falling tool, by means of which Mr. Kind explored the Creusot coal field to a depth of 3017 ft., while at Sperrberg a depth of 4170 ft. has been attained. The Chinese from remote ages have bored holes by using a rope in place of rigid rods, and the Americans have adopted and improved this method in the Pennsylvania oil district, where holes have been bored by the thousand. The chisel is attached to a short length of rods, with jars, and these are connected by a round hemp rope to a reciprocating beam actuated by a steam-engine, two men sufficing for all the labour and attention required. Holes of 1500 ft. deep have thus been put down in 36 days, a speed of 39 ft. per 24 hours having been attained, while the cost of a 5 or 6 in. hole of that depth is stated at about 8s. 5d. per foot. Mather and Platt in their boring machine use a flat wire rope to connect the boring head with the motor, and the motion is given by passing the rope over a pulley mounted on the piston rod of a vertical steam cylinder. The turning of the chisel is effected by an arrangement in the boring bar, and cores of the strata are readily obtained from holes of 9 to 18 in. diameter. The 1300 ft. bore at the Bootle Well was done by one of these machines, and they have also been largely used in the Middlesbrough and other districts, the speed attained being from 4 to 9 ft. in 24 hours.

Herman in 1864 proposed the use of diamonds for arming the cutter of a rotary drill; and in 1862 a patent was granted to Leschot for a drilling machine in which the diamonds were mounted on the end of a steel tube, and a current of water employed to clear away the abraded rocks. Further improvements have been effected by Col. Beaumont, whose machines are now in extensive use. The diamonds used are of the black or carbonado variety, and are mounted (by pressure) on the end of a steel tube, and on being rotated cut an annular groove in the rock, leaving a central core. The rods are tubular, and a stream of water passing down the inside of them, and flowing up between the rods and the sides of the hole keeps the cutting surfaces clean, and brings up the debris. Many important borings have been carried out on this system. At Neuville, 2430 ft., chiefly coal measures, were bored through in 13 months, the hole being 6 in. in diameter at top, and finished 4 in., and the average speed obtained 3½ ft. in 24 hours. At Aschersleben, 2959 ft. were bored, the hole being 12 in. diameter at top and 3 in. at bottom; but at Lübben, in Mecklenburgh, a depth of nearly 4000 ft. is stated to have been reached in six months. The system has the advantage over all others in the large percentage and perfect state of the cores obtained, and the knowledge thereby afforded of the nature of the strata passed through; but it would appear to entail an increased cost of 50 to 75 per cent. over rigid rods, and considerable trouble has been experienced, in Australia especially, from the liability of the holes to become crooked. The benefits derived from the continuous flushing of deep bore-holes (patented in 1844) are very marked, and advantage has been taken of this in the plan for boring through alluvium, invented by Mortensen, and known as the Aalborg system, in which no cutting tool is used, but a current of water is forced down an inner tube, and ascending through the annular space between that, and an outer lining tube brings up with it the debris; holes have been thus put down at a rate of from 60 to 160 ft. per day.

The hand tools used by the miner in breaking ground have undergone but slight change in form; but a decided advantage has been gained by the substitution of steel for iron, more especially in the case of drills, which are now commonly made from solid octagonal steel bars in place of iron bars with steel bits. Accidents having arisen from the use of iron for pricklers and stemmers, this material was forbidden by the Mines Act, 1872, and gun metal or copper has been very generally substituted. But these metals are both capable of giving off sparks, and the new alloy proposed by Mr. Lawrence, though apparently safe, is not strong enough. For the first tamping a hard wood "stemmer" is efficient and quite safe, and safety fuzes ought to displace the "pricker," while the use of suitable cartridges would materially lessen the danger of premature explosions from loose grains of powder being scattered in the holes.

The great expenditure of time and labour involved in the drilling of holes for blasting, particularly in hard ground, has led to the invention of numerous rock-drills to be driven by steam or compressed air. Amongst the earliest successful ones of these were the Ferroux and Dubois and François, which with the McKean are in especial favour on the Continent, where they have contributed greatly to the success of the Mont Cenis, St. Gothard, Aarberg, and other important tunnels. In America and England we have quite a considerable number of machines, any of which are capable of and are daily giving most satisfactory results wherever due attention is paid to systematic and orderly arrangements in their use. All these are upon the percussive principle, the drill being attached to the rod of a piston by the direct reciprocating action of which it is impelled against the face of the rock, the feed being either by hand or automatic. In Brandt's machine, which is held in high esteem in Prussia, the drill is a hollow cylindrical steel bar, on the end of which are formed five teeth; this is forced against the face of the rock by a hydraulic press, and is rotated by a pair of small hydraulic engines, and cuts a cylindrical hole, the core of which is cleared away by the continuous stream of water escaping from the driving cylinders. The results of a series of trials, extending over 10 or 11 months at Zankerode, to determine the relative advantages of hand, percussive, pneumatic power, and rotary hydraulic power drilling, show that calling hand-drilling unity the efficiency as to speed of Schram's percussive drill driven by compressed air was 4.73, and of Brandt's rotary drill driven by hydraulic power was 5.26; and in cost per metre, again taking hand-drilling as the unit, the cost by Schram's drill was .62 to .70 and by Brandt's .60. A rotary drill, invented by Mr. Walker, is used in Cleveland, the drill being a bar of twisted steel, rotated by a pair of cylinders driven by compressed air.

When neither air nor water power is available hand-drilling machines are sometimes useful. The best known are those of Macdermot and Baird, both comprising a twisted steel bit, to which a rotary motion is imparted. The advantages of these machines are not so strikingly apparent as to have induced their very extended adoption. Mention may here be made of the tunnelling machines of Mr. Brunton and Col. Beaumont, in which the whole face of a heading some 7 ft. diameter is ground away at one operation by a series of cutters carried upon a rotating boring head. During this session our members have had the opportunity of seeing the Brunton machine tried practically at a quarry at Bootle, and the Beaumont

machine is doing excellent work in the heading of the Mersey Tunnel.

The use of explosives of great power is a quite modern innovation. Sombro, of Turin, in 1847, discovered nitroglycerine or glonion, a heavy yellowish oil, with from five to ten times the explosive force of ordinary gunpowder, but its extremely dangerous character prevented its extensive adoption. In 1864 Nobel introduced dynamite, which consists of diatomaceous earth (kieselguhr), saturated with about three times its weight of trinitroglycerine. Thus prepared we have a powerful blasting agent, which with ordinary care is safe to handle, and great advantages have been gained by its adoption, especially in hard ground, in the lessening of the number and size of the drill holes requisite. Mr. Nobel has since invented blasting gelatine, which is prepared by dissolving collodion cotton in nitroglycerine, and is a jelly like almost transparent substance, containing 90 per cent. trinitroglycerine. Weight for weight this is about 25 per cent., and bulk for bulk about 40 per cent. more powerful than dynamite, and it has already come into considerable use in America; its greater insensibility to shocks and absence of dust after explosion, with its greatly increased strength, compensating for the extra cost, which is about double that of dynamite. Other strong explosives in common use are tonite, or compressed gun-cotton, and the E.S.M. powder.

The fullest benefit of these modern explosives can only be obtained by the use of strong detonators fired by electricity, by which we are enabled to plant a number of shots in such a manner that when fired simultaneously they shall mutually assist each other, the whole area of level or shaft, to the depth of the drill holes, being usually broken out at two discharges. At Fraibram, some experiments carried out with great exactness showed a saving over black powder of 23 per cent. in cost and 33 per cent. in time when dynamite exploded by electricity was used, while with safety fuse and caps the saving was 9 per cent. in cost and 15 per cent. in time. The frictional electric machine of Bornhardt, and the magneto-electric exploder of Siemens, are both effective and in considerable use, the latter being, perhaps, less liable to derangement by damp or neglect. For coal getting these explosives are too quick, and blasting powder continues to be used, the compressed cartridges, manufactured by Hall, being very handy and convenient.

## FUEL AND WATER.

That work can be performed more satisfactorily when the workman understands the principles which should guide him than when he is entirely dependent upon copying even good examples, is assumed in affirming the advantages of technical education; but it is admitted that what may be termed popular technology—the explanation of the principles involved in a given process or manufacture—is as necessary as ever since in the ordinary course of business the exact relation of the principle and the practice of the matter is apt to be overlooked. It is upon these considerations that such works as that now under review—Fuel and Water: with special chapters on Heat and Steam Boilers. A Manual for Users of Steam and Water. From the German of Franz Schwachhöfer, Professor at the Imperial and Royal School of Agriculture, Vienna. Edited by WALTER E. BROWNE, M.A., M.I.C.E. London: Charles Griffin and Co., Exeter-street, Strand—are worthy of special commendation. The object of the volume is to furnish the user of fuel and water for the generation of steam with such information in a compact form as shall enable him to deal with such questions as the determination of the best form and arrangement of boilers, the prevention of scale, the draught of chimneys, the efficiency of different forms of furnace, and so on. Hence, the editor explains that he describes, for instance, the different types of boiler rather in principle than in detail, sketching the ad-

vantages and disadvantages of each under various circumstances, giving special prominence to such questions as the different kinds and classes of coal, the purification of feed water, the qualities needed in water according to the purposes for which it is used, and so on. It is explained that the present work forms the first part of Schwachhöfer's encyclopaedic treatise on modern agriculture; but that its value to users of fuel in general was so widely recognised that it was issued in separate form.

Although undoubtedly based on Schwachhöfer's work, so many modifications have been made in adapting it to the requirements of the English reader that it is essentially a new book. Mr. Browne has been careful in matters of detail to refer to English practice, and not to Austrian, and in case of elementary scientific knowledge which can be assumed to be possessed by the average German workman, but which few English workmen could boast of, Mr. Browne has been careful to supply the deficiency by giving a clear and popular outline. In the first part of the volume, which treats of fuel, there is an introductory chapter on heat and combustion, which well prepares the reader for the details subsequently given. The chapter on the physical characteristics of heat—temperature, specific heat, conduction, condensation—is followed by others containing full particulars concerning the various kinds of fuel, the firing arrangements, and the boiler. In the second part, treating of water, the physical properties of water are first treated of, and chapters are then given on the composition of natural waters, the influence of the composition of water on its applications, on the purification of water, and on the production of cold and of ice. The practical utility of the volume is beyond question, the matter is well selected, the style clear and concise, and the illustrations are ample.

INGALL'S FOREIGN STOCK MANUAL.—The 28th annual edition of this manual—that for 1884—has just been issued by Messrs. F. C. Mathieson and Son, of Bartholomew House. The more prominent features of the manual are:—The leading pages to each loan, giving the total original and present indebtedness of the State and remarks general to the whole debt; the dates of final extinction; the amounts to be drawn in the coming year, giving a basis for the calculation of the market value of the drawings; the objects and security of each loan; the overdue interest to date on defaulting debts; and, this year in addition, the annual revenue required for the service of interest and amortisation of loans of those countries which are solvent. The Foreign Stocks Calendar may be detached without injury to the rest of the book. The reliability of the Manual is so well known that in this respect no further commendation is necessary.

CORNISH PUMPING-ENGINES.—The number of pumping-engines reported for January is 13. They have consumed 1293 tons of coal, and lifted 8.9 million tons of water 10 fms. high. The average duty of the whole is, therefore, 46,800,000 lbs. lifted 1 ft. high by the consumption of 112 lbs. of coal. The following engines have exceeded the average duty:—

Mellandear—76 in.	Millions	61.7
West Basset—Thomas's 60 in.		51.3
West Wheel Seton—Harvey's 85 in.		62.6
West Wheel Seton—Rule's 70 in.		74.6

HOLLOWAY'S OINTMENT AND PILLS.—As the seasons change the climatic variations warn us all to be careful, most especially is it incumbent on the aged, prone to bronchial attacks, outward ulcerations, and similar debilitating disorders, to have them removed, or worse consequences will follow. These remedies are their sheet anchors; on their power all may confidently rely. The ointment not simply puts their sores out of sight, but extracts the source of mischief, extracts the corroding poison, and stimulates Nature to fill up the ulcer with sound, healthy granulations, that will abide through life. Under this treatment bad legs soon become sound, scorbutic skins cast off their scales, and scrofulous sores cease to annoy. Such hope for the diseased was unknown in former days.

This Property will command a practical monopoly of the Coal Trade of the Danube, Black Sea, and Constantinople. Income from Contracts offered will amount to £30,000 per annum, equal to over 30 per cent. on the total Capital of the Company after payment of the Government royalty. A further offer has been received to take the whole production of Coal at a clear profit of 10s. per ton.

## The Iron Gate Coal and Chrome Company, Limited.

Incorporated under the Companies Acts, 1862 to 1880, whereby the liability of Shareholders is limited to the amount of their Shares.

### CAPITAL £100,000, IN 100,000 SHARES OF £1 EACH,

Of which 20,000 are taken by the Vendor in part payment of the purchase-money, and the first issue of 50,000 are now offered for subscription, payable:—5s. per Share on Application, 5s. per Share on Allotment, and the balance, as and when required, in Calls of 5s. per Share, at intervals of not less than three months. In the event of no Allotment being made, the amount payable on Application for Shares will be returned in full.

## DIRECTORS.

Sir GEORGE INNES, Bart., Richmond, Surrey.  
JAMES CROSTON, Esq., J.P., Manchester, and Upton Hall, Cheshire.  
Mr. Alderman JENKINS, Higher Broughton, Manchester.  
T. SAUNDERS, Esq., J.P., Holland Road, Kensington, W.  
Mr. Councillor HUGO SHAW, Manchester.  
THOMAS OLDHAM, Esq., Holmfeld, Sale, Manchester.

SOLICITOR—J. H. BOARDMAN, Esq., 41, John Dalton Street, Manchester.

BANKERS—THE UNION BANK OF MANCHESTER AND BRANCHES.  
(Messrs. GLYN, MILLS, and CO., London Agents.)

AUDITORS—MESSRS. JOHN ADAMSON, SON, and CO., Norfolk Street, Manchester.

SECRETARY (pro tem.)—Mr. F. W. DAWSON.

REGISTERED OFFICES—9, CORPORATION STREET, MANCHESTER.

## ABRIDGED PROSPECTUS.

This company is formed for the purchase of concessions granted by the Crown of Hungary, of the mining rights in perpetuity over a district of about 25 square miles in extent, situated on the Danube at Tisovitz and Eibenthal, near the well-known city of Orsova, together with the freehold land at Tisovitz, and the works, houses, offices, and landing stages erected thereon, and the plant and machinery appertaining thereto, and for working the extensive and valuable deposits of coal and chrome thereon.

COAL.—This property has been inspected and favourably reported upon by some of the most eminent authorities—namely, Prof. Hull, F.R.S., F.G.S., Director of the Government Geological Survey of Ireland, and previously Government Inspector of Mines in Lancashire, Prof. V. Ball, F.R.S., F.G.S., Director of the Government Geological Survey of India, and Commissioner at the Vienna Exhibition, 1873, Nelson Boyd, Esq., F.G.S., M.E., J. E. Wood, Esq., C.E., F.R.S., Luke Blackwell, Esq., M.E., and others, who state that the coal on this property resembles both in appearance and quality the South Wales steam coal, being peculiarly adapted for use in locomotives, and for steam navigation, a fact that is proved by analysis.

The coal seams are vertical, or nearly so, and crop out on the flanks of the hills, and can be worked by adits, without machinery, for raising or draining. Four of the seams are already proved, and opened out by adit levels. These seams vary in thickness from 4 ft. to 20 ft., and the quality is excellent. Another seam 48 ft. in thickness, is stated to have been discovered, and others are known to exist. It is computed that these seams contain over 100,000,000 tons of workable coal, free from gas or water.

These collieries, being the nearest cheap source of supply for vessels navigating, and towns upon the Lower Danube, Black Sea, and Constantinople, will have the whole trade open to them, and no English coal can possibly compete on account of freight and charges, which to Galatz amount to 18s. to 20s. per ton, whilst it is estimated

the total cost to this company for coal delivered free on board will not be more than 5s. per ton. The selling price of steam coal at Galatz is stated to be about 39s. per ton, and for native coal further up the river 21s. to 33s. per ton. The supply from the collieries can easily be made equal to 2000 tons per week, and deliveries commenced forthwith.

The directors have already received an offer of contract for 20,000 tons of this coal per annum, for three years, with a clear profit to the company of 10s. per ton. A further offer has been received to take all the coal that can be delivered at the same rate of profit.

The chrome ore crops out on the surface, and can be worked in open quarry, and the simple process of hand-picking would suffice to ensure a large immediate delivery, very little capital being required, except for actual wages. The inspecting engineers concur in stating that the chrome ore can be delivered on the Danube, free on board at 5s. to 6s. per ton. A firm contract is already offered for 10,000 tons per annum, for three years, with a clear profit to the company of £2 per ton.

The demand for coal on the Danube, and for chrome in England, America, and on the Continent being continuous and increasing, and the sources of supply of the latter being few, a ready sale at highly remunerative rates may be always relied upon for a much larger output.

The purchase money agreed to be paid for the estate and mineral rights is £60,000, to be paid or satisfied as follows, viz., £16,000 in cash, £20,000 in fully paid-up shares, and the balance in coal and chrome from the property.

Copies of the reports, memorandum, and Articles of Association, can be seen at the offices of the company's solicitor. Prospectuses and forms of application for shares may be obtained from the solicitor, auditors, the bankers, and also at the offices of the company.

\* President's Annual Address to Liverpool Engineering Society.



SOUTH WALES COLLIERY COMPANY.



keep the mine in fork. He suggested that a small committee should be formed to go into the matter, and see what could be done. Mr. Holmes had 10,000 shares, and thoroughly believed in the property.

Mr. TROSKELLAS said he had been at the mine three times, and could confirm all that the Chairman had said. At that was wanted to spend a few thousand dollars to reap wealth from the Randolph.

The CHAIRMAN, in reply to a question as to the tailings (valued in the original prospectus at \$2,500), said that they were still there, though he would not pledge himself to that estimate, which was, no doubt, exaggerated. He fought against the allotment "tooth and nail," but was on the faith of these tailings that he gave a reluctant assent. No one could exactly state the value of these tailings.

No further resolutions were passed, and the meeting broke up after a desultory conversation.

#### GOLD COAST MINING COMPANY.

At the ordinary meeting, held at the Guildhall Tavern, yesterday (Captain MOLESWORTH in the chair), a report from Mr. Houghton on the concession at Abontuyakoon was circulated in the room.

The SECRETARY having read the notice of the meeting, the CHAIRMAN said the usual course would have been to issue a report, but as the directors had placed their resignations in the hands of the committee that had been appointed they had followed the course indicated by the committee, especially as Mr. Houghton's report had not at that time been received. A delay had taken place in getting out the accounts, and although the auditors had been hurried as much as possible the accounts had only been put in the printer's hands on the previous evening, and had just arrived for circulation at the meeting, and the board had not had the opportunity of going through them. Having tendered their resignations the directors did not think themselves free to issue proxies, and they regretted that one member of the board should have issued a circular applying for proxies. Mr. Houghton's report was very able and exhaustive, and carried with it a great deal of fairness, finding fault when it was necessary and giving praise to the manager when it was deserved. On the whole, the report was very satisfactory, more especially as Mr. Houghton went out in the belief that gold did not exist on the Gold Coast. It was, therefore, the more gratifying to find that he finished his report in these words:—"In conclusion, gentlemen, permit me to congratulate you and the shareholders of the company in being the fortunate possessors of Abontuyakoon. As a mining property I am confident it will ultimately take its place in the front rank of dividend-paying mines." With regard to the machinery, which was reported as not well calculated for the work, it was only a fact that it was ordered before Mr. Gowan, the manager, went out. At all events, the Elephant stamps and the crush stamps were ordered, and Mr. Gowan, therefore, was not responsible for the class of machinery sent out. At that period the ore was of a softer character than the hard quartz which had now been met with, and which required heavier machinery to crush it. He thought that Mr. Gowan ought to have reported the defects in the machinery. It appeared that the ore was not being crushed fine enough, and it was now recommended that the dry process should be used. Some of the gold had been assayed, and gave a result of 34.93. At present the gold went through too large a sieve, and did not release the fine particles of gold which were in the tailings. He had to submit a sample of crushed ore which had become an impalpable powder, and when this was forced through a tub containing quicksilver the finest particles were taken up, and on the sample being assayed it was found that 73 per cent. had been saved. They now had ore which contained on an average 22 ozs. of gold per ton; and as the machines intended to be used would crush 50 tons a week at the cost of 10s. per ton, then, if they got 80 per cent. of the gold there should be a return of 11,000s. per week for each machine used. They could only form their knowledge by experience, and he had no doubt, as Mr. Gowan had said, he had been baffled in getting the gold out in consequence of the machinery not being properly adapted for the work. However, a great deal of labour had been done at the mine in clearing the forest, building houses, and driving seven or eight tunnels, and Mr. Houghton gave great credit to Mr. Gowan for the sites selected for the crushing machinery. A good deal of money had been spent, but a small amount compared with the expenditure of some other companies that had been working for 14 years without any profit at all. Mr. Houghton was recommended as a gentleman who had had great mining experience in Australia, where they had facilities for using heavier machinery, but there was a difficulty in getting heavier machinery up to the mines from the Coast of Africa. As he had said, the board had not had time to go over the accounts since they were printed, but they included a period of four years. At the present moment it would be seen from the accounts that they were short of capital. (Laughter.) But he felt sure that if Mr. Houghton's report had arrived before the appointment of the committee there would have been a willingness on the part of the shareholders to give the further capital. The appointment of a committee under any circumstances did no more harm to a going concern. In the present state of affairs they would have to use different machinery to that which they had, and that which would be required for the dry process would be lighter than the stamps now used. He proposed that they should husband the resources of the company as much as possible until Mr. Houghton himself returned home. The company had power to raise 5000s. in shares yet unissued, and he did not believe that with Mr. Houghton's report before them the shareholders would sacrifice the value of the property they had, but would in some way assist in reorganising the company. He would be happy to answer any questions, and would then propose the adoption of the report and accounts.

Mr. O'LEARY WEBB said the shareholders had not had time to consider the accounts, and they could hardly, therefore, be asked to pass them on the present occasion. He did not agree with what the Chairman said about the machinery, for the Wasau Company were using machinery one-fourth or one-fifth heavier than theirs.

After some discussion it was decided to adjourn the meeting, the accounts to be considered at the adjourned meeting.

The meeting was then made special, when the new board were elected, consisting of Messrs. Andrew Stewart, Joseph Sala, H. W. Maynard, Vans Agnew, Nixon, and Capt. Molesworth.

A vote of thanks to the meeting closed the proceedings.

#### EBERHARDT MINING COMPANY.

An extraordinary general meeting of shareholders was held at the City Terminus Hotel, Cannon-street, on Thursday,

Mr. E. L. J. RIDSDALE (the Chairman of the company) presiding.

Mr. W. R. WRIGHT (the secretary) read the notice convening the meeting, which stated that it was called for the purpose of submitting for confirmation the following resolutions which were passed at the extraordinary meeting held on Feb. 7:—

1. "To authorise the borrowing of 20,000s. at a rate of interest not exceeding 10 per cent. per annum, and in consideration thereof, to issue debentures of the company in such form and upon such terms and conditions as such meeting may prescribe, and the directors may determine, and with the right to the holders of such debentures, at any time before payment, to require the issue of ordinary shares, credited as fully-paid, in discharge of and exchange for the same, at the rate of two such ordinary shares of 1s. each, credited as fully-paid, for each 1s. of principal money secured by the said debentures, in addition to the payment of the interest thereon up to the time of such exchange."

2. "To authorise the increase of the share capital of the company by the sum of 40,000s. in shares of 1s. each. Also to give power to the directors to appropriate the same to the satisfaction of the claims of the debenture-holders. And for any of the purposes aforesaid to amend the Memorandum and Articles of Association of the company."

3. "To authorise the execution of such contracts as may be necessary to allow the issue of such shares credited as fully-paid-up in accordance with section 25 of the Companies Act, 1857."

4. "To pass such other resolutions in relation to the subject-matters of the said circular, and the above notice as such meeting may think fit."

The CHAIRMAN said: Gentlemen, this is only a formal meeting convened for the purpose of confirming the resolutions which were passed at the previous meeting. It is now obvious that the terms which were offered then were not sufficiently liberal, and that accounts for the comparatively small number of applications which have been made for the new capital. I have nothing further to add, but will simply move the confirmation of the resolutions as a matter of form. Mr. Bladon will then move an amendment in the terms shadowed forth at the foot of the notice convening this meeting, and if that amendment is carried, as I expect it will be, it can then be moved as a substantive resolution. The Chairman then formally moved the confirmation of the resolutions given above.

Mr. SACRE seconded the motion.

Mr. F. BLADON: It is perfectly clear that the offer made to the shareholders at the last meeting has not been deemed sufficiently liberal, but if, as is suggested, we were to give five ordinary shares for each 2s. subscribed to the debentures, I think that would be a great attraction for the increase of capital. This simply means that we shall give 5s. instead of 10s., and if we carry this amendment we shall very soon have more capital subscribed and be able to proceed to allotment. We shall then be enabled to recommence active operations at the mine, and I have no doubt that the whole of the required amount will be offered long before it will be wanted. Mr. Bladon then proposed to amend the first and second resolutions; in the first by substituting five ordinary shares for each 2s. of principal money subscribed, and in the second by altering the terms as follows:—"That the capital of the company be increased to 250,000s. by the creation of 40,000 new ordinary shares of 1s. each."

Mr. CHARLES KING, in seconding the amendment, said he had no doubt that the more liberal terms now offered would have the effect of bringing in the capital required.

Mr. BLADON asked that the last letter received from Captain Drake should be read.

The SECRETARY read the following letter from Mr. Frank Drake, dated Feb. 2: "Drift No. 1 from 600 feet west has advanced 7 feet; total, 264 feet. The ledge matter has rather improved in appearance having a little more quartz and considerable black spar. The drilling is quite hard, but the stuff breaks fairly; the wall is not yet regular. Have made 8 ft. in upraise 2; total height 223 ft., the rock unchanged. I have, therefore, taken 10 men from this work, and am now standing on driving again. But have no progress for the week to report in the drift 2 from 600 ft. west. The prospect here I consider far better than in the upraise, and I hope it may result more favourably."

The CHAIRMAN: You have heard what Capt. Drake has to say, and it certainly seems very desirable that the scheme already discussed at length should be carried out. If this amendment is carried as a substantive motion it will be required to call another meeting to be held in about 14 days to confirm it. I may say that we have every confidence in the ability and energy of Captain Drake.

A SHAREHOLDER said he had received a letter from an intimate friend who had a resident property adjoining the Eberhardt Mine, in which the writer said he had no doubt that they would find a boon, and in which the speaker had expressed his holding in the company. (Hear, hear.)

The CHAIRMAN, in reply to a question, said the amount already subscribed was 3000s., but it would be useless to attempt to go on with that amount.

The amendment was then put and carried. It was then submitted as a substantive motion and was agreed to.

On the motion of Mr. BLADON, seconded by Mr. KING, a vote of thanks was passed to the Chairman, and directors and the meeting then closed.

#### SOUTH DARREN MINING COMPANY.

The ordinary general meeting of shareholders was held at the offices of the company, Austin Friars, on Friday, Feb. 22, Mr. THOMAS BUSH in the chair.

The SECRETARY read the notice convening the meeting, and the report and accounts were taken as read.

The CHAIRMAN said the report had been made so full that there was very little left for him to say with regard to the affairs of the company. Unfortunately, since the last meeting Mr. George Blogg, who had been a very able and attentive director for many years, had died suddenly of a heart disease. Since then he and his colleague, Mr. Schofield, had thought it better that until the meeting, at all events, they should go on with only two directors, as the finances of the company were running very short, and it was necessary to save all the expenses possible. If the shareholders thought proper they could now choose a third director. Otherwise Mr. Schofield and himself would continue to direct the affairs of the company for the present. (Hear, hear.) With regard to the mine, he could only say that it was looking as promising as at any time since his connection with it. The last report received from the agent was of a more satisfactory character than for some time past. There was, however, one thing quite certain, and that was that the company could not make much profit with lead so low as it now is, and with the same rate of dues. With reference to the dues, the secretary and himself had had a long interview with Sir Pryse Pryse, the lessor of the mine, and they had fully expected, from the way in which they were received, that the dues would be reduced; but, unfortunately, these expectations had not been realised. Sir Pryse Pryse had said that if the price of lead went up the company would get all the benefit; but he (the Chairman) replied that they would be quite content to work on a sliding-scale, so that while neither party should bear all the burden, each would participate in the rise; but Sir Pryse Pryse and his agent were unpractical. Notwithstanding this, they had determined to sink the shaft, which would cost 35s. per m. in the, and this was, of course, a dead loss until they got to another level and met with good lead. He could only hope that Sir Pryse Pryse—when he found that in every direction the lessees were assisting the mines by reducing their dues—would also assist the company by reducing his dues. He then moved the adoption of the report and accounts.

Mr. SCHOFIELD, in seconding the motion, said that at the last meeting he had expressed a hope that they would make a profit during the current year, and that they would probably be able to pay a dividend of 2s. a share; and this would have been realised had the price of lead kept up to the price then ruling, and if the returns of ore had also been kept up, but unfortunately the price of lead ore had fallen 2s. per ton, and they had only sold 50 tons of lead ore, as against 540 tons in the previous year, making a difference with the fall in price of 933s., while they had sold 50 tons of copper ore less than in the preceding year, realising 300s. less than had been expected. There had, therefore, been a difference of 1233s. between the estimated and the actual sales. They had, therefore, lost 333s. on the year—this, with the anticipated dividend of 2s. per share, would have amounted to 600s., making exactly the difference of 1233s. between the estimated and the actual sales. The mine could not, however, be blamed for the falling off in the returns; and he was glad to say since the appointment of Captain Mitchell an improvement in the returns had taken place. Since the close of the year they had had three lead ore sales and three copper sales, and the new agent having increased the returns by 10 tons, after paying every expense, including the dues, there was a profit of about 60s. It was satisfactory to see that they were paying their way; but the surplus assets over liabilities were only 780s., and they must husband it, as out of it the working expenses of 550s. on book per month had to be paid before cash for the ore sold could be received. Lead was nearly as low as it had been within the last hundred years, and with the unrestricted and untaxed importation of lead from Greece, Germany, Spain, France, and other countries, there was little prospect of any improvement in the price of English lead, nor, indeed, in the price of English metals generally. This was the effect of so-called Free Trade, which flooded our markets with the produce of other countries where labour is cheaper, and where the ore is of higher grade, and producers are more fairly treated than they are in this country. (Hear, hear.) It was to be hoped that those interested in the mining industry would combine together and make a strong representation to the Government with the view of getting a reasonable and fair duty placed on imported metals. (Hear, hear.) If something of this kind were not done he could not but think that in the course of a few years all but the most productive mines would be abandoned, capital would be withdrawn from this industry, and thousands of men would be thrown out of employment and become paupers. The question of the dues was a subject more fairly treated than they are in this country. (Hear, hear.) It was to be hoped that those interested in the mining industry would combine together and make a strong representation to the Government with the view of getting a reasonable and fair duty placed on imported metals. (Hear, hear.) If something of this kind were not done he could not but think that in the course of a few years all but the most productive mines would be abandoned, capital would be withdrawn from this industry, and thousands of men would be thrown out of employment and become paupers.

Mr. A. VIVES and other shareholders expressed their concurrence in the views expressed by Mr. Schofield, and the hope was expressed that a representative committee would be formed from the various mining companies, to impress upon the Government the necessity of protecting our mining industry.

Mr. SCHOFIELD, in reply to further questions, said some lead mines in the Principality which belonged to the Prince of Wales had had their dues lessened, but unfortunately this good example had not been generally followed. The following paragraph from the report he thought summed up the question of dues:—"Seeing the rigour with which the landlords of mines exact the fulfilment of the onerous conditions, and the payment without any abatement of the heavy rents and dues reserved in leases granted many years ago, when metals were from 30 to 50 per cent. higher than at present, and the heavy losses which the lessees are unavoidably subjected to in consequence, the directors hope the Legislature will be appealed to by the mining interests generally to pass measures of relief similar to those given by the Irish Land Act and the English Agricultural Holdings Act to Irish and English tenants." He trusted these remarks would convince their landlord that he also ought to assist the company by lowering the dues for the present. (Hear, hear.)

Mr. SCHOFIELD further stated, in reply to Mr. STORY, that their lease was a very large one, through which the paying stuff was very widely disseminated, and but for the silver in the ore they could not work at the present time without a very heavy loss.

On Mr. STORY's reply to remarks from a SHAREHOLDER, stated that since the close of the past year the expenses of the London offices and management had been considerably reduced, Mr. Murchison having at the board's suggestion promptly reduced his salary from 1500s. to 750s. per annum, and the directors having voluntarily reduced their fees from 50s. to 30s. each per annum.

The report and accounts were unanimously adopted.

Mr. E. STORY moved the re-election of Mr. Bush as a director.—Mr. SCHOFIELD seconded the motion, which was carried unanimously.

On the motion of Mr. A. VIVES, seconded by Mr. STORY, it was resolved not to fill up the vacancy at the board at present.

Mr. L. M. BERTHELL was reappointed auditor.

The meeting closed with the usual complimentary vote of thanks to the Chairman and directors, and an expression on the part of the shareholders of their entire confidence in the management.

**MONTANA COMPANY.**—At the meeting yesterday of the Montana Company, under the presidency of Mr. N. Story Maskelyne, stated that everything which has been ascertained regarding the M.P., the report and accounts were adopted. The proceedings were of the most satisfactory and unanimous character, and it was property since it has been in the hands of the company go to show that the hopes held out in the original prospectus will be fully realised. A full report will appear in next week's Journal.

**WHEEL JANE.**—At the meeting on Feb. 22 (Mr. J. C. Daubuz in the chair) the accounts showed a loss on the five months' working of 1935s. 9s. 11d. A portion of this loss, however, was met by the call made at the previous meeting of adventurers, so that the total adverse balance only amounted to 767s. 3s. 4d. A call of 1s. 6d. per share was made. The Chairman said one of the resolutions passed at the present meeting was that the committee should make an application for a reduction of the dues, and the communication with the lords for the reduction of dues, the committee were of opinion that it would be better to defer taking action until after the meeting that day. With regard to the appointment of a secretary and purser, there were many applications, and they ultimately selected Mr. Everett Hancock, who had been connected with the mine for 12 years. The Chairman stated that in the last ten years calls had been made at that mine amounting to 21,000s., not including the call made that day. Dividends were paid in 1874 and 1875 amounting to 2500s., since which time they had not paid a dividend. The loss on the 10 years' working, therefore, had been 28,400s. Out of that dues had been paid to the lords in the same period amounting to 3226s., in addition to considerable amounts for water charges, fines of various kinds, and compensation to tenants. The committee would ask the shareholders to strengthen their hands by passing the following resolutions:—"That the committee be requested to confer with the lords of the mine, and ask them for a remission of the dues for 12 months in order to assist the adventurers to keep the mine afloat, and that the rate of dues in future be more in accordance with the terms of the Cornish mining." For the past three or four months the committee had pretty well taken the bull by the horns, getting the accounts in a satisfactory state, and with one or two exceptions he believed every item known had been brought into the accounts. Now it remained for them to make some settlement with the lords, and it was only fair that all parties who were anxious to keep Cornish mines working that all should bear a portion of the burden. The Chairman read the following letter:—"Truro, Feb. 15:—Town Council and Adventurers in Wheel Jane,—"You are doubtless aware that I have received peremptory instructions from the Town Council of this city to take immediate legal proceedings against the adventurers in Wheel Jane for the damage caused to the navigation of the river by the refuse which is allowed to be carried down from your workings. I have, however, been led to understand within the past few days that active measures have been taken, or are about to be taken to remedy the mischief complained of. If between this and Wednesday next, when a meeting of the Council will be held, you will give me an assurance that this is correct, and at the same time point out the nature of such measures, I have no doubt that the Council will instruct me to delay proceedings for the present. (Signed) F. Hearn Cook, Town Clerk." On receipt of the letter he called on Mr. Cook, and intimated that the affairs of the company were in such a critical state that it was questionable whether the mine would be able to weather the present storm, and that it would be only by the forbearance of all the lords, who must come to the rescue. He also suggested that the Town Council of Truro should not be too pressing in their demands. Mr. Cook saw the difficulty, and had explained it to the Council. He might, however, state that they had been in communication with Lord Falmouth's agent, and that a piece of ground where the refuse might be deposited in the valley, and so doubtless the Council would be mentioned when they had an interview with the lords in regard to the dues.

#### FOREIGN MINES.

**AKANKOO.**—J. Lane, Jan. 26: No. 1 adit is now in 576 ft., and Mr. Lane expects it will very shortly cut the reef in north side of hill. The drive west from No. 1 adit is in 59 ft., and the drive east 69 ft.; the reef continues about the same in thickness and character. The drive west from No. 2 adit is in 24 ft., and the drive east 30 ft. The mill-house is erected and roofed in.

**ALMADA AND TRITO CONSOLIDATED SILVER.**—R. Harris, Jan. 19: Mina Grande, 100 Lode: In stope in back of 40 ft. drift 5 ft. were staked at 35 per foot. This stope is now yielding 8 tons per lineal fathom. Sample from same assays 25.3 ozs. per American ton. In stope in back of No. 45 drift the average ore width is 2 ft., which we estimate at 3 tons per lineal fathom. Assays from this stope 14 and 31.5 ozs. per American ton. In No. 3 winze below No. 45 drift 5 ft. were sunk at 312 per foot. The bottom is in 2 ft. of milling ore, and worth 8 tons per fm. Assay from same 30.9 ozs. per American ton. The 12 ft. level was driven 13.7 ft. during the fortnight. The north breast shows 1 ft. of ore, which we estimate at 4 tons per lineal fathom. There is a branch of fine ore on the western side, which if it continues south will be an important discovery. We cannot see sufficient length of this as yet to give an opinion of its value. Stope in back of 11 is looking well. This stope throughout its present length carries 4 ft. of ore, which we value at 16 tons per lineal fathom. Assay from same 29.2 ozs. per American ton. In No. 1 winze below 12 ft. were sunk at 315 per foot. Pay streak in bottom is 2 ft. wide. We estimate its contents at 3 tons per fathom; assay from same 17.5 ozs. per American ton. No. 2 winze below 12 was sunk 9.7 ft. at 312 per foot. The bottom shows 3 ft. of ore, which we value at 12 tons per fathom; assay from same 33 ozs. per American ton. San Juan stope is yielding 10 tons of good milling ore per lineal fathom. Assay from same 30.3 ozs. per American ton.

Jan. 15, 16, and 19: Battery samples, 37.9 ozs. per American ton. — W. A. Clemen, Jan. 12: Raw pulp assays 29.2, 29.7, 29.3 ozs. per American ton. Roasted pulp assays 28, 25.7, and 26.3 per ton: 97 per cent. of ore chlorinated; average time of leaching, five days; tailing assays, 4 ozs. per ton; week's leaching, 84,884. The leaching did not continue constantly during the week, on account of the boiler of the centrifugal pump being in very bad condition. — Telegram from Manager: Profit for January, 2400s.; two weeks from furnaces 312,000.

**ANTIQUA GOLD.**—Profit and Loss Account for December: 28 tons of mineral produced 22 ozs. of gold (average 15½ dwts.); 107 tons of attle produced 13 ozs. of gold; total, 30 ozs. Estimated value, including exchange, 1,567. 6s. Cash at the mines at Medellin and in London 2497. 11s. Estimated loss 1447. 5s. In addition to the cost of 2497. 11s. the sum of 492. 19s. has been spent on capital account.

**BALAGHAT GOLD (Colar, India).**—T. Bray, Jan. 30: During the past week the new engine shaft has been sunk a depth of 2 ft., making a total of 159 ft., and it is certainly very gratifying to me to inform you that we have struck the reef showing some splendid golden stone, but not having broken into it sufficiently to ascertain its thickness as yet. In the winze no stuff has been hauled to the surface, and we have been filling up the workings with mullock to keep the mine safe. The cross-cut at the 105 ft. level has been extended 1 ft.; total, 6 ft. Prospecting shaft has been sunk 10 ft.; total depth, 3 ft. Air shaft the 105 ft. level have started to sink a winze on some low grade stuff, but I hope this will improve in depth.—Surat, Jan. 30: The roads have been repaired, and the part of the machinery has been carried to the mine. The first load of machinery from Madras arrived yesterday, foundations for engine and boiler have been finished, and the masons are well on with the buildings. I am also having the settling dam cleaned out.

**BELT COPPER.**—Mr. Brand, Feb. 4: My last report was dated Jan. 21, since then I have to report as follows:—Champion: Rise from No. 2 shaft from adit to surface continues in good vein, showing both barrel and stamp copper. In the far end of No. 1 level east I have put a drill stope. Two days ago it showed about 2 ft. of epidote in the footwall very heavily charged with round pellets of copper. It now shows 4 ft. in width, and we are not yet through it. The amygdaloid part of the vein towards the hanging-wall shows good stamp rock. In No. 1 level west a drill is now stopping and turning out very rich rock. This rock I am sending to the mill to line the sieves with copper. No waste rock is sent out of it, and at present the rock is 3 per cent. copper or better. The 2nd level east shows good vein with some heavy barrel copper. In the 2nd level west we are now stopping and it looks well in stamp rock. The Knowlton shaft has never looked better than it does now. This shaft is going down very slowly on account of the heavy copper in it. On Thursday night, out of seven holes started, only one got down 20 in., the others being driven into copper. The Knowlton level shows good stamp rock, but no barrel copper. The Wolesley shaft was sunk 22 ft. 3 in. in January in good stamp vein.—Mill: The mill was started on Feb. 1, and everything went off well. I teamed down to the mill about 200 tons of rock from stope in 1st level west. Champion. This is now being stamped, and the copper that comes away is being returned again to the sieves in order to get a good body of copper on the sieves. It is only imperfectly cleaned, and will be so until the sieves are well packed. Three days will see the sieves lined and everything in good working order. On the 1st and 2nd the head was stamping with only 45 lbs. steam till all the bearings worked smoothly; to-day we increased the pressure to 75 lbs. I have engaged Pearce from the Atlantic, a young man recommended by Mr. Evans, and Wobler from the Osceola, as copper washers. Both appear thoroughly acquainted with their business and to take an interest in it. It will take a little while to get the sieves, &c., of the jigs set exactly. As regards the trial tests you wish made it will be difficult to carry these into effect, but I will see that everything is done to obtain the results you wish. The pump is now doing its work in very good shape, and is not extravagant in steam. Our buddies and sieves are now being made, and as soon as the sieves are lined everything will then go along permanently. Since printing the foregoing, the following cablegram has been received from Mr. Brand advising that the percentage of copper realised from the worst part of the burrow was 1 per cent., whilst the results of the crushings thus far conducted averages 1.66 per cent.—72 hours, 300 tons achieved 5 tons of copper. Worst part of burrow from opening, 1 per cent. Mill can do 180 tons per 24 hours.

**CALIFORNIA GOLD.**—Alfred Richard, Jan. 26: At the shaft the space required for storage of water is now nearly obtained. A dam will be placed in during the coming week, and all will be ready for sinking on Feb. 1. The 1500 ft. level east is in 154 ft., and 5 in. water. The stope of this level continues to yield well, maintaining their output at 6 tons of good grade ore per fathom. The 1500 ft. is in 175 ft.; the large width of vein holds fairly well, the drift is still yielding about 15 tons of ore per fathom. The lode in the stopes of this level is now 2 ft. wide, yielding from 4 to 5 tons per fathom. The 1400 stope east are doing satisfactorily, and yielding larger quantities of ore; the vein is 1½ ft. wide, yielding 8 tons of milling ore and a little smelting ore per fathom. The 1400 ft. is in 400 ft.; a branch of pay has appeared, which we hope will open into stopping ground. The grade of the ore from the stope of this level has much improved, and they maintain their yield of 5 tons per fathom. The 1400 rise is up 30 ft., and communication has been made with the winze in fair grade stopping ground.

—Telegram, Feb. 23: Mill run 435 tons, yield, 1200s.

**CALLAO BIS.**—G. Volvelder, Jan. 25: No. 3 shaft: The gallery towards the west is 30 ft. long, and as I have already informed you, the quartz vein discovered is a very well pronounced, and as unquestionably it is advisable to sink on this lode, I have abandoned the drift, and commenced sinking in the shaft, as I expect to cut the same vein in the western corner of shaft, or, if another drift is necessary, it will be but 2 or 3 ft. off, thus facilitating the hoisting of quartz, as also being able to work with one pump only. Mr. Perkins, superintendent of the Callao Company, paid a visit to this shaft, and, after visiting the galleries, &c., has spoken very favourably of the quartz vein, and is of the same opinion as myself—that it is a sure indication of the proximity of the lode.

**CANADIAN COPPER AND SULPHUR.**—F. Bennett, Feb. 14: Hartford Mine, No. 5 Shaft: The vein in the bottom of the 70 east is about 10 ft. wide, of which from 4 to 5 ft. is solid ore, the remainder being green rock containing copper ore scattered through it. In the stope in the back of this level there is a leader of ore of about 15 in. wide. In the stope in the bottom of the 60 east the solid ore portions of the vein is about 3 ft. wide. In stripping the hanging wall at the 50 east near the No. 5 shaft we have discovered a thickness of from 4 ft. to 5 ft. of ore, but have not yet reached the wall of the vein at this point. In the stope in the back of the 40 east the solid ore portion of the vein is from 2 ft. to 2½ ft. wide. In the stope in the bottom of the 23 east we have opened out about 10 ft. of ore, but have not yet reached the walls. In the stope in the bottom of the 23 east the solid ore is about 2½ ft. wide. In the stope in the back of the 10 east the ore is about 7 ft. wide. In the stope in the back of the 10, west of shaft, the ore is from 4 to 6 ft. wide. In the winze sinking under the 50 east the vein of ore is 2½ ft. wide.—No. 1 Shaft: The vein in the bottom of the 40 at this shaft is about 8 ft. wide, of which about 4 ft. is solid ore. The smelting works are running fairly well.

**CAPE COPPER.**—Capt. Lankbury and Henwood, Dec. 31: A little delay has occurred in driving the 1.5 fm. level east of new shaft, owing to the new engine having taken the place of the Robey for pumping. The No. 15 level, is worth about 1 ton of rich copper ore per fm. No. 57 winze sinking below the 92 produces a little copper ore, but not to value. The ground in the 92, east of new shaft, is unproductive and spare for driving.—No. 58 winze sinking below the 92 has not as yet revealed anything of value; the ground is a little easier. The 80 fm. cross-cut south of No. 43 winze is still worth 4 tons of copper ore per fm. No. 54 winze sinking below the 68 is communicated with the stope in back of the No. 32 winze; this has lately opened the ground conveniently for stopping. We shall shortly start a cross-cut north from the top of this winze to prove the extent of the productive ground in that direction. The 28, north-east of new shaft, although nothing of importance has been met with, the ground is very congenial for copper ore.

**SPECTAKEL.**—Capt. Lankbury and Henwood, Dec. 25: Having now attained the required depth in the incline below the 75 fm. level, sinking has been suspended, and the men have commenced to drive the 86 in ground chiefly composed of quartz containing a little copper ore. The necessary depth for the 86 has been reached in the winze sinking below the 75; the winze will remain suspended owing to the large quantity of water we have to contend with until a level has been advanced from the incline. The ground in the bottom of winze still presents signs of copper ore. The stope in 75 maintains its value of 1½ tons of copper ore per fathom. A new level has been started north-west of No. 2 cross cut at the 75, with the object of proving the ground between this point and the stope above referred to. The stope in bottom of 64 yields 3½ tons of copper ore per fathom.

**TRIAL MINES.**—Captains Lankbury and Henwood, Dec. 31: Since last report cistern has been fixed and sinking resumed in the shaft below the 40. We hope now this will be prosecuted without interruption. The ground in the 40, south of main level on vein, yielded during the month some good stones of copper ore. The men are now engaged cutting out sides of level to prove if there is any continuation of the same; the present forecast is again unproductive. The 40 east of winze is temporarily suspended. The ground in the winze sinking below the 40 shows a little improvement, but as we have before stated the value of the rock here fluctuates considerably. The bottom yields a little copper ore, and presents favourable prospects. Having intersected nothing in the trial cross-cut underneath the indications we have removed the men and begun to sink at the surface on the course of the mineralised ground. Sinking in the trial shaft here has been carried on vigorously, but without meeting with anything of value; the ground is still of the same congenial nature, and we hope it will lead to riches beneath. Some good spots of copper ore have been found in the trial shaft sinking below the surface at this station; the ground is sparry for the present, and letting out a considerable quantity of water.

—Returns for December.—Osklep, 1300 tons of 29 per cent.; Spectakel, 144 tons of 41 per cent.—Bills of lading received: 910 tons per fathom of the North, 47 tons



per L'Esperance, 628 tons per Hinda, 598 tons per Talca, and 696 tons per Glenudal.—Arrival at Port Nollath: The Hondeklip.—Arrivals at Swazie: The Betsy, San José, Esompo, Ghanafon, and Star of the North.—Sales of ore: 1380 tons at 11s. 6d. per unit.

**COLOMBIAN HYDRAULIC.**—A. E. Oakes, Jan. 18: Malpas: I have duly received your Deed of Conveyance to say I am still confined to my bed. The works have gone on as well as the season will permit. The Medina ditch was finished and the water turned through it on the 6th inst., but some heavy slides of earth brought down during a storm so choked up the Cantera that we were not able to get the water on the mine until yesterday, the 17th. I sincerely trust the running may now be continuous, and that I may henceforth take out enough gold each month to pay expenses. I believe the worst of our troubles is over now, and our returns should henceforth improve, so that by the time the additional supply of water is on the mine we shall be in a position to do very well, we shall then quickly make up for the past. The New Cantera ditch is finished all but 1000 ft. of fluming, and this we shall most likely have finished in a month.—Pipes: We have a great deal of pipe already riveted, but have stopped work for want of rivets. The tapering mouthpiece from California has arrived, and we shall proceed at once to put it together. If all pipes and rivets were now, it would not take long to get our second machine to work.—Crooked Silices: These no longer exist. The present stoppage has enabled me to take up the whole of the crooked ones and replace them with straight ones.

**COLORADO UNITED.**—Mr. Macrae, Feb. 23: The 13th level east was driven 53½ ft. during last month, and is still showing up a streak of ore of about 2 in. The level is now some 4 ft. wide, and showing a very promising-looking streak composed of black and grey ore, of 13th level, which stopped working on account of the low grade of the ore, has been set on lease to a party of four men at 25 per cent. royalty. No. 3 stop at back of 13th level has been set on lease to another party, who are to pay 35½ per cent. royalty on all ore taken out. The party who are working on the Blaine level, east of the West Terrible tunnel have a streak of ore of some 3 in. in width, and have shipped 35 sacks of ore. The mill has been running very well indeed during the past week and is putting through from 15 to 20 tons each shift.—Ore shipments for Feb. and March: 53 sacks of ore weighing 2 tons 200 lbs.; 120 sacks of zinc headings 5 tons 174½ lbs.; total, 173 sacks weighing 8 tons 545½ lbs. There has also been 233 sacks shipped by lessees, and there are 2 tons of lead headings and 3 tons of zinc headings on hand.

**CORPORATION OF SOUTH AUSTRALIAN COPPER.**—Capt. Bryant, Jan. 12: Billman Mine: I herewith beg to hand you my setting report to date. The No. 1 shaft: The 70 has been set to two men, at 14½, 10s. per cubic fathom; the present value per cubic fathom of the No. 1 shaft is 10s. 6d. The north end has been set to six men at 12½ per fathom, or 5 fathoms or hole to vugh; the level here is very variable in value, and small branches of black and grey ore are occasionally met with. The present value for the portion carried 1 ton 25 per cent. ore. In order to communicate with the vugh in bottom of the winze this end is being pushed with all speed. The 60 north has been suspended for the purpose of testing the ends of the winze sunk by the old workers in the bottom of the 60; the present value of the winze is 2 tons 200 lbs. per cubic fathom. We purpose resuming the driving of the end as soon as the stopes are in full working order and the block of ground is available by communication of diagonal winze with the 70 north. The men that were engaged driving the 60 south have been put to cut winze plat preparatory to sinking the winze below this level, rendered necessary for ventilation. This winze will be sunk about 8 ft. south of the bottom of the winze sunk below the 40; the level at this point—winze plat—is 14 ft. north of 23 per cent. ore per fathom. Looking at the ground in the bottom of the winze should pass through a valuable piece of ground. Plat let to cut 6 ft. by 8 ft. at 17½. The 50 south is let to two men, to drive at 12½ per fathom; the level at this point appears to be trending in a more easterly direction; it is at present small, and producing inferior dressing work.—The stopes in bottom, south of winze: Owing to width of ore deposit, we have for security of working commenced stoping in bottom of level—the 50; the present value is 1½ ton of 24 per cent. ore per cubic fathom. This will doubtless improve as we advance south; the stopes in the bottom of level, south of the 50, are worth 2½ ton of 24 per cent. ore per cubic fathom, with occasional rich pockets and branches of ore are met with, which is bagged underground. The men are at present making good progress with their contract. A new stop has been set in the bottom of the 60 south, north and south of winze, to six men for two months, at 5½, 10s. per cubic fathom; present value of level, 3 tons 25 per cent. ore per cubic fathom. On Thursday last the chain drawing the puppy on sinking-lift parted and the bucket jammed in the working, and all the men were obliged to release it, having broken the rod we are obliged to leave off the pumps. Men will be engaged as this work during next time. All things progressing favourably, we hope to be in working order again next Tuesday. In the meantime, we shall not be able to haul any stuff from the 70; it has already delayed us two cores dressing. Saltia Well is yielding water about equal to our requirements for dressing 18 hours a day, and as far as we can see at present, is a permanent supply. Machinery at surface is in good working order. From present appearances of stopes we hope to get a good return for our investment. The contract for the No. 1 shaft, at 12½, a trial shaft has been sunk on the branch of ore 4 fms. 1 ft. The wall is holding down regular, and on its occasional stones of quartz and grey ore, but nothing of much value. The committee have stopped all work here, and discharged all hands.

**DENVER GOLD.**—Frank S. Craven, Feb. 5: In the 800 west (north vein) the drift is in 172 ft. east from cross-cut. There have been no noticeable changes in the ground; 74 tons mill ore last week yielded 37½ oz. gold, or ½ oz. per ton. The cross-cut for this vein cut through it on Jan. 31. The vein here found is 2½ ft. wide, and we are now milling a sample lot of the ore. It promises to be of low grade. Drifts have been started east and west from this cross-cut. In the 900 west the drift is in 908 ft. from the shaft. It carries 1 ft. of good ore. There are no changes in the stopes from which we are now raising higher; 41 tons last week milled 24½ oz. gold, or 3-5 oz. per ton. A bid of \$50-50 per ton on last smelting ore shipment of 10 tons has been received. In the 1275 west stopes there are changes in the ground; 41 tons milled at week milled 18 oz. gold per ton. In the 1300 west the stopes are nearly exhausted at the present points of operation. The drift is in 300 ft. from the shaft, and carries low grade ore. Total milled last week amounted to 190 tons ore, which yielded 88 1-5 oz. gold. Total smelting ore sales amounted to 7252 lbs. ore, which netted \$114-22.

**DEVALA MOYAR GOLD.**—Mine Manager, Feb. 4: At Strathmore reef work is going on fairly considering how wet and difficult to drive the ground has been. After it has been allowed to drain the driving will become easy. The drive going north is good-looking stone, in which I can see a little gold, but not in payable quantities. In the cross-cut at the southern end I have been meeting with leaders, in which I can see gold, and I shall anxiously watch the drive. With Harewood tunnel we have only made 3½ ft. this week, having encountered a very hard bar, which I think is only a narrow streak traversing the country. At Salomon's reef the tunnel has been driven 6 ft. during the week, the progress being slower as the rock became harder. The shaft has been sunk 5 ft.; the reef is 8 or 9 ft. thick, but not so good as when it was narrower. During the last two weeks I have carried down and up 40 tons from the old heap of quartz taken out when we made the raise up. The quartz was in the pass, and I thought I would try a small lot before I let it run out of the shoot over the hill; the yield was 2½ dwts., which is not payable, but nevertheless is an improvement upon most that we have milled. During the ensuing week I will get down a prospect from the shaft, and test it in like manner. To enable us to prospect the reef thoroughly and in the shortest time, I have started two drives driving south along the course of the reef, starting in the raise-up. The first drive will be 60 ft. up from the old mine, and the other 140 ft. up the raise-up. I will crush samples from both these, and all the places we are working progressively.

**FRONTINO AND BOLIVIA GOLD.**—Profit and Loss Account for December: 2568 tons (of 20 dwts.) from general mines produced (average 13 dwts. per ton) 1787 ozs.; gold bought, 107 ozs.; silver, 190 ozs.; total, 2054 ozs. Estimated value of the gold, including exchange, \$4534. Cost at the mines at Medellin and in London, \$5724. 6s. monthly allowance for freight, commission on gold sales, and sundry fluctuating outlays immediately ascertainable, estimated at 3000. Paid for gold bought of tributers, 2471. 18s.; equal to 56200. 2s. Estimated loss 1622. 2s. In addition to the cost of \$5724. 6s. the sum of 286. 9s. has been spent on and debited to capital account.

**HONNACHOS.**—In the first half of February no material change occurred at the various points of operation. Good progress is being made in the drifts. At the main shaft the sinking has been somewhat retarded by the repairs to the engine and pump. The drift at the north shaft for placing the third winch has been made, and pipes are now being fixed in the shaft for ventilation.

—Telegram, Feb. 25: Mill started.

**HOOVER HILL GOLD.**—Feb. 6: Report for January: Gallimore: The shaft is down 37 ft. below the 170. Progress has been slow, owing to having to keep the water by single bucket. The vein in the bottom is looking well. The north drift at the 170 is in 40 ft. Work has been discontinued for the present. The winze below the 170 is in 19 ft.; the vein in the bottom is looking well. There is no change to note in the stopes. Good progress is being made in cutting down and timbering the old Briol's shaft.—Hawkins: The east cross-cut at 135 is in 22 ft. The ground in the end has become much tighter. The south drift from the west cross-cut is in 54½ ft.; the ore indications going off on the west side have been followed 16 ft. From the east cross-cut at 70 the ore has been followed north and south, a total advance of 67 ft. having been made. We have passed through some bunches of good ore, but the quantity has been on the whole small and irregular. We have come back to where we had the best bunch, and are breaking some good ore, which we intend to follow. In the drift south from the Hawkins' open cut shaft we have cut small bunches of ore at the places. The total driftages from this shaft amount to 195 ft., an advance of 117 ft. for the month.—Mill: 506 tons were stamped during January, yielding 199-05 ozs. of gold, or at the rate of about 7¼ dwts. per ton. The development and prospecting work done during the month amounted to 242½ ft. The gold produced about covers expenses. The larger proportion of the exploratory work has been done in the Hawkins' Mine, which has produced during the month, and in fact for many months past, very little ore, and that on the whole low grade, the Gallimore yielding the bulk of the bullion. In the Hawkins' we have found a number of bunches of ore, but they have been small and occur irregular. The Briol's shoot in the Gallimore, however, I am pleased to say, is opening out with great regularity, and is improving with depth. Regarding only the present, we should stand much better if work were confined to this part of the mine, but I think the Hawkins' work is thoroughly proving. Some time ago I heard of a small boiler feed pump (Blake pattern), which had been taken up to High Point from here by Mr. Rigby, whilst employed by Beckett and McDowell in building the mill, and had been lying there ever since in a stable. I have had it brought down and put up, and it is now feeding the mill boiler; the original mill boiler feed pump, a small Worthington, I propose, after fitting with a different style of plunger, at a cost of about \$14, to try for keeping the water in the Gallimore. I think the experiment will succeed, and if it does it will be a great help in sinking, and will enable us to make better speed. The water in this shaft would be easily kept by the smallest size of mining pump, but keeping it by bucket entails constant bailing whilst sinking, and is a source of delay. If this pump answers the hoist we have will do for a little while longer.

**KOHINOOR AND DONALDSON CONSOLIDATED.**—Mr. Alfred Rickard, manager at the mines, in his report for the two weeks ending Jan. 31, states respecting the Donalson Mine:—The main part of the north stop at No. 2 level is yielding steadily ore of good grade—¾ ton of smelting and 3 tons of milling ore per fathom. In the south stop of the same level the ore is not so large, and the production of milling ore is less proportionally than in the smelting ore, of which there is a paying quantity, the yield being ½ ton of smelting and 1½ ton

of milling ore per fathom. The lode in the bottom of this level is 2 ft. wide, of coarse nature, rendering careful sorting necessary. The lode in the intermediate level (drift and 2½ ft. dip) is yielding satisfactorily, the output being 1¼ ton of smelting and 3¼ tons of milling ore per fathom. At the north stop of this level the lode is fairly large, being about 1½ ft. wide, of which 5 in. is smelting ore; the yield is ¾ ton of smelting and 2 tons of milling ore per fathom. At the Champion Mine there is not much in the condition of the stopes to comment upon, the yield having been well maintained throughout the month. The output for the month will aggregate about 50 tons of smelting ore from both mines, which, if of average grade, will amount to a larger sum than has been realised for some months. A trial of the new machinery was made on Jan. 28, and every part was found to work smoothly and with perfect ease; the last splice in the Donaldson tramway rope was then taken in hand. Some difficulty is being experienced in getting the tramway to work automatically; we trust, however, to get over the difficulty in a few days.

**LAKE SUPERIOR NATIVE COPPER.**—Capt. Williams, Feb. 1: No. 1 level, south of No. 2 shaft, on course of lode, advanced 7 ft. 3 in.; lode at present small and unproductive. No. 2 level, south of No. 2 shaft, on course of lode, advanced 5 ft. 6 in.; lode hard and solid, but producing strong native copper, and looking very well. No. 3 level, south of No. 1 shaft, on course of lode, advanced 9 ft. Here the lode has greatly improved since my last. In the last 5 ft. driven through the lode produces good saving work for copper glance, intermixed with quartz bearing native silver. The quartz and silver is very much like that found on the Silver Islet location, and which, I think, is the same lode some miles south of us. The lode in this No. 3 level is very promising in value, and by next mail, I hope to develop an idea of its assaying value. No. 4 winze sinking under No. 2 level, south of No. 1 shaft, sunk 12 ft. 5 in., producing good mill-work for size of winze. No. 2 shaft sinking below No. 2 level sunk 2 ft., lode very hard. In the hanging-wall the trap has been replaced by conglomerate. This has somewhat disturbed the lode. We shall have reached the depth of our No. 3 level by the end of next week, when we shall cut a plat, and commence driving north and south on course of lode. It will be advisable to cut into the conglomerate, as we have occasionally found small pieces of native copper in it. A shaft at harbour on a dry-galad belt sunk 12 ft. Here we have reached a depth of 62 ft. and next week shall begin to cut through the belt and drive on its course; the part we are carrying in shaft still produces native shot copper. The stopes continue to produce good mill-work. Our skip-road in No. 1 shaft is finished, and also our shaft-house. We have commenced hoisting again to-day, and find both skip and road working satisfactorily. On Monday we shall begin running the mill day and night, supplying the rock drive for the season. We have nearly as much cordwood as we shall require this season. This will reduce the expenses considerably this month (February).

**NEW EMMA SILVER.**—George Cullins, Feb. 9: There being no favourable change in raise or north-west level I have done but little work in either since report of Jan. 23, and have, therefore, thought best to discontinue both for the present. Have commenced sinking a winze from east level directly under raise, where we have a small seam of ore, hoping it will open out as we go down. This winze will be for sinking a shaft at harbour on a dry-galad belt sunk 12 ft. Here we have reached a depth of 62 ft. and next week shall begin to cut through the belt and drive on its course; the part we are carrying in shaft still produces native shot copper. The stopes continue to produce good mill-work. Our skip-road in No. 1 shaft is finished, and also our shaft-house. We have commenced hoisting again to-day, and find both skip and road working satisfactorily. On Monday we shall begin running the mill day and night, supplying the rock drive for the season. We have nearly as much cordwood as we shall require this season. This will reduce the expenses considerably this month (February).

**ORIFA GOLD.**—W. S. Welton, Jan. 20: Medina Ditch: Total excavation for principal cutting finished—18,000 cubic yards. During the month 1654 ft. of ditch proper has been cut 10 ft. wide and 3 ft. 6 in. deep, and the following (number for ditches is now ready for use): 1-1½ in. plank, 5380 ft.; 4 by 4 in. square morticed for sleepers, 4680 ft.; covering slabs, 5530 ft.; 19,570 ft. besides a large quantity of square pieces 8 by 10 in. for bulkhead, gates, and bridges.—Pipes: The 860 ft. of large taper pipe for head of pipe has reached Honda, and all the pipe, advised as shipped, has been dispatched from Barrancilla. The force employed putting pipe together is sufficient to work up all plates as they reach the mine. The heavy casings for air valves and distributor 650 ft. in length of principal cutting, 22 ft. in diameter, the present rate I estimate that the work will be completed in a month's time.

**ORGANOS GOLD.**—J. G. Green, Dec. 29: As under I beg to hand you report of result of December working:—100 tons of general mineral from Constancia Mine produced 65 ozs. gold = 65 ozs. per ton. This is the result of one week's work with the four batteries of stamps; commenced crushing on the 7th and finished on the 15th. The mineral raised and lying at Socorro could not be brought down owing to the wet weather; and for this reason, too, and the number of feast days during the month, no more mineral could be brought down from Constancia. I fully calculated on obtaining 150 ozs. during the month, and would have managed this quantity if it had not been for the afore-said drawbacks. The wet weather continued fully 14 days later than last year, and afterwards the feast came on and stopped nearly all work. I do not send account of cost and profit and loss. There is a lot of mineral lying around, and which must be crushed before I can make out a correct statement. All the machinery is being overhauled and new stamp-heads and anvils put in mortar, and we are prepared for a good run when the weather improves. The lands under turbine pipe has given away owing to the supporting bank being bad. During the month this has been timbered up and made thoroughly secure. The jaws of stonebreaker have been reversed for crushing finer, and the turbine-wheel has been cleaned and the casing caulked. A lot of new wheelbarrows and tools generally have been made and put in repair.—Mine: All works are confined to driving the Buena Ventura end west, stoping in back, and open cutting over Esperanza, and at Socorro Mine, where Buena Ventura has been driven 5 ft. in very hard ground—close, compact kila. The lode is small and poor, but very little change can be expected in such a short distance. I am looking for additional men to put in this end to push it forward as fast as possible under the Ocho, where there is no doubt good sections of lode will be discovered. The stopes in the back of the Buena Ventura has produced the best part of the 65 ozs. obtained this month; the lode is very small, but good. As regards the mine, we had a very heavy fall of the cliff at the Constancia opening, and we have been up to the present clearing same; in consequence of our supply of stuff from this point has been very small. At Socorro we have been taking out mineral of the usual quantity auriferous gossan, and the mine looks well. In accordance with the instructions of the board I have again gone over the back of the Constancia vein westwards, and am glad to say that I have found evidence of a strong lode passing in this direction. I have put two men to coast and prove the back, and will report the result in my next. With the promised additional capital to prosecute the ends and open up stoping ground we shall soon be in a position to pay dividends on the shares. In the meantime, in some fine specimens of quartz showing plenty of gold which he had picked up in the Te Encantado property, and I immediately went over the ground, and found other similar boulders of quartz evidently from a lode to the south of the Te Encantado lode proper, containing all over the hill ever since, but have not yet been successful in discovering the lode. Should we be fortunate enough to do so I need not say the value of the company's property would be greatly enhanced. The Te Encantado cross-cut should certainly be continued to cut the old lode. This is as good a prospect as any for the lode at the outcrop is very strong. I am greatly cheered to notice that the shareholders seem to be alive as to the value of their property, and have determined to look after their interests by developing the various lodes as they deserve.

**PESTARENA UNITED.**—W. Roberts, H.J. Gifford, Feb. 16: Val Toppa: No. 1 end on slide and new lode is rather small and pinched at present, but the ground is so unsettled that the appearance changes from day to day; it now yields about 1 oz. per ton. The No. 2 level, but in the northern part there is just a small vein of quartz. Small veins are very often found behind the hanging-wall, and we are still making trials in this. The average yield is about 8 tons per fathom of 10 dwts. per ton. End on branch, east of the new lode, has a good strong lode, with plenty of pyrites throughout. A floor of decomposed schist has come in from the bottom, but the lode seems to continue without much difference underneath it, and yields 15 tons per fathom of 12 dwts. per ton. From the 100 ft. level, the lode goes forward in stratified micaceous schist, and we have met with the soft decomposed schist, but the lode is not so good, although the rock seems favourable, have not yet met with the soft decomposed schist we had in the level above before cutting the lode. The western end of this cross-cut is now communicated to No. 2 level, so that it is easier to remove the stuff, and if we find the lode in the cross-cut it will be very much better for working it. The stopes continue to yield the usual quantity of ore.

**RHODES REEF GOLD.**—Mine Manager, Feb. 4: During the past week I have been timbering No. 1 drive—putting in extra air, as the ground is becoming heavy. As I reported last week, this is the only drive we are continuing to work.

**RICHMOND.**—Cablegram, Feb. 5: Week's run (one furnace), \$14,000, from 303 tons of ore. Refinery, \$13,000.

**ROSE UNITED GOLD (Hokitika, N.Z.).**—Manager, Jan. 3: The negotiations for the working of the 100 ft. level, referred to in the previous report, have now been completed, arrangements having been made with a party of miners to work this layer on a tribute system, the terms of which range from 5 per cent. to 50 per cent., according to results. The work already done has proved very satisfactory to the company, and as other applications have been made to work additional areas upon the same terms, it is likely that a large portion of this particular stratum will be worked on similar terms. The pumps have again started, with the very satisfactory result that, notwithstanding the length of time that the water has been accumulating in the ground, the engine cleared the shaft between 12 P.M. of the 1st inst. and 11.30 A.M. of the 2nd, thus allowing the men to go down and resume sinking. The extension of the main tail race is being carried on under contract, but this work has to be regulated by the level necessary for drainage any development is purely accidental, in the meantime it has proved the ground. As to the erection of elevators, the necessary excavations are now nearly completed for the reception of machinery, for which the directors are in treaty.

**RUBY AND DUNDEBERG CONSOLIDATED.**—Feb. 3: Dundeburg: There are 22 tributers at work, and 7 tons tribute ore shipped during the week. Some 8000 lbs. of the west end of the shaft from the north cross-cut bottom level is in low grade ore and ledge matter, the mill ore of the grade, a portion of it only is of sufficient value for ore. Stoping has been commenced in the back of the above mentioned drift near the end, where the ore is about 3 ft. wide of fair grade. The south drift from the bottom level has been advanced 10 ft. during the week. The present end is in ore about 4 ft. wide, which looks very favourable for developing into an orebody. Should this continue to improve during the coming week we will then let a contract to sink the incline 40 or 50 feet deeper. The stopes at the end of the south drift from the third level near the incline are not looking quite so well. The ore at present is about 2 ft. wide in the south end of the stopes, where there is a reasonable chance for improvement. There is none of the low grade quartz from the upper workings being mined at present on account of the roads being blocked by snow. There is considerable ore at the mine ready for shipment, and 20 tributers at work.—Lord Byron: The tunnel has been advanced 5 ft. during the week; total, 485½ ft., owing to the depth of snow on the mountain the contractors have not been able to get to their work regularly.

—Telegram, Feb. 26: No ore shipped, the roads being blocked with snow the whole of the week.

**SANTA BARBARA GOLD.**—Rio de Janeiro, Feb. 21 (telegram): Water out of the 50 north. No. 1 shaft clear, which the directors understand as meaning that the old mine has been pumped free from water to the 50 north—50 fms. below the deep adit level—and further, that the old No. 1 shaft is clear.

**UNITED MEXICAN.**—Santa Rosa, Jan. 25: Mine of San Cayetano de la Ovejuna: In the frente No. 2 of San Juan the lode measured last week 1-30 metres in breadth, with only slight appearances of ore in it. In the contraciolo No. 2 of Santa

Rosa the width of the lode is only 35 centimetres, and the ore has given out. In the frente No. 1 of San Juan west there is no change to be noted in the lode, nor in the strip of ore which continues of a low ley. In the frente No. 2 of San Juan west the lode is 80 centimetres broad, inclusive of a costra 15 centimetres broad, of fair ore, which we have found lately to be the base of the vein. In the frente No. 2 of San Juan east the productive costra is only 35 centimetres broad, but the ore is of a very good class. In frente No. 3 of San Juan the vein is 60 centimetres broad; but the ore is ramified. In pozos No. 3 of San Juan the width of the lode has decreased to 1-20 metres, but it gives no ore. In pozos No. 4 of San Juan the ore, of a fair class, is ramified over the breadth of the lode, which measures 1 metre. We have continued to work in pozos No. 6 of San Juan this week; the lode is 1-75 metres broad, and in it 70 centimetres are in good ore. We have opened a new frente in the stopes of frente north of San Andres east, that is between the frente No. 4 of San Andres east, and the upper part of frente No. 7 of San Andres east, which will go by the same name of frente No. 7 of San Andres east. The ore is of a good class on a breadth of 40 centimetres, and the vein measures 1-80 metres. In the frente No. 9 of San Andres west the vein is unproductive now, but measures 1-30 metres in width. In the frente No. 10 of San Andres west the upper lode has trended more to the alto, but the lode to the bajo, which is the one we have been driving on shows good ore in the strip of a breadth of 35 centimetres, while the breadth of the lode is 1-90 metres. In the pozos of San Antonio the lode is getting narrower and is still barren. On the 24th inst. we sold in reate about 235 cargas for \$5-43; 430 cargas were sent to Duran, and 1 cargo 6 arrobas and 15 lbs. of bonito were sold; total extraction for last week 727 cargas of hacienda ore. The tramway is finished, and the trucks are rolling on it from the end of San Juan to the mouth of the adit. I have just received the bill of lading of the Crabbs, &c., sent from Mexico on the 28th inst. Returns from the mine of San Cayetano de la Ovejuna for the week ending Jan. 26, 1901-39, outlay \$3485-06; estimated value of tortas and ores on hand and under reduction, \$66-350. The stock of quicksilver in Duran on the 26th inst. was 24,435 lbs. The cash balance was \$2453-47, without any liability. No. 10, Hay, Feb. 25: Excess of return outlay in the mine of San Cayetano de la Ovejuna for the week ending Feb. 23, \$5000.

**VICTORIA GOLD.**—T. O. Danby, Jan. 21: Since my last work has been progressing very rapidly with the machinery, and I have no doubt without anything entirely unforeseen occurs to have the stamp running at the time I mentioned—about the end of next month. We have cut another leader in the adit showing good quartz. All the indications prove we are close on the lode. The surface has been covered some very fine stones.

**WEST GALLAO GOLD.**—Manager, Jan. 21: I have now the pleasure to inform you of the safe arrival of the machinery at the mines, and I have been very busy unpacking since Saturday last, when a number of wagons came in; four more arrived yesterday and one to-day, while I am now going to get the last one out of a marsh about four hours from here. The engines are only very slightly damaged by the transit, and can be easily repaired by me here in a few days, while as to the rest of the machinery it suffers from nothing worse than rust. You may rely upon my doing all I can to hasten the completion of the mills, so as to get immediate crushings.

**TOLIMA MINING COMPANY.**—Advices received by the mail of Feb. 23, of which the following is an abstract:—

Frias December returns	\$50,735-7
" " cost	22,658-1
Profit	\$28,127-6
Less capital expenditure	2,174-4
Frias net (estimated) profit	\$25,953-2
Equal in sterling to 43251. 10s. 10d.	

	Fms.	Ft.	In.
The underground report shows	54	3	0
of ground expended, of which	56	1	8
were productive, leaving of unproductive ground	8	1	8

The superintendent states that the invoice represents 15 tons of export ore of an average yield of 309 ozs. per ton (Frias assay), being 62 ozs. richer than the previous shipments. This is principally owing to an improved silver grade in the No. 1, or cobbed ore, broken from the 60 and 70 fm. stopes on the eastern extension of the mineral section. The costs include the sum of 16741. 4s. expended in the Claras Ditch home section, and upwards of \$500 on new works in connection with the water-wheel and proposed crusher foundations.

After allowing for a week's entire suspension of operations for Christmas holidays the month's results may be considered satisfactory.

**Frias underground report.**

**ENXENSA.**—A powerful and improving lode exists in the sole of this shaft. Its components are light coloured schist with quartz carrying pyrites, with traces of lead and blende, but not in saving quantities. Progress in sinking is somewhat slow, but I trust we may be enabled to make better speed.

**80 FM. WEST.**—Operations on this level have been limited to the stripping down of the south side of the lode to the country rock, in order to prove the entire section of vein to its full width. The lode is massive of great strength, but unproductive. Its width is from 10 to 12 feet, and its character much the same as seen in the shaft.

**80 FM. EAST.**—This level has been extended 53 ft. from shaft to date. The lode is the full width of the drive, composed of schist and quartz, carrying a leader of blende and pyrites, with lead and black sulphide of silver interspersed, giving saving work for the crusher.

**70 FM. EAST.**—The end is being continued on the central portion of the lode, pending the simultaneous operations in the northern portion of the vein by the 80 FM. EAST. The end of the lode is being continued on the central portion of the lode, pending the simultaneous operations in the northern portion of the vein by the 80 FM. EAST. The end of the lode is being continued on the central portion of the lode, pending the simultaneous operations in the northern portion of the vein by the 80 FM. EAST.

The side stopes, which is a continuation of the main stopes upon the northerly rib of mineral lying against the hanging-wall of the vein, and which is still from 6 to 7 fms. behind the end, up to the present proves a fine course of mineral, 18 in. wide, almost solid, to be striking into the north side of the main lode, and this I want to find holding out for a few days as a 14 in. width, carrying three leaders of mineral of an aggregate thickness of about 3 ft., or, say, 3 to 10 tons per running fathom of the vein at its full width.

**70 FM. EAST STOPES, WESTERLY SECTION.**—Good average mineral is being extracted, the produce giving satisfactory crusher work.

**70 FM. EAST WINZE (LEON'S).**—Driving has been commenced westward from the sole of this winze with a view to communicate with the 80 fm. east. The character of the vein in the winze is identical with that of the 80 fathom level. Rogers' Winze has been sunk 26 ft. up to date. The lode is the full width of the winze. The western end contains a 10 in. mixture of blende, pyrites, and quartz in a compact branch. The remainder of the vein consists of dark coloured schist and quartz with strings of pyrites. The eastern end of the winze is against the cross-course, which is again taking its former and more rapid dip, the underlie being at present about 56° e-stwards.

**70 EAST, NORTH CROSS-CUT.**—This has been driven 51 ft. from the main level. With the exception of small quartz strings nothing of importance has been met with. The cross-cut has not yet been extended far enough to cut the south lode.

**70 WEST.**—The vein in this end is more compact and regular than previously. It is 6 ft. wide, composed of quartz and schist highly charged with pyrites, but containing no ore to value.

**60 WEST.**—The vein here is becoming harder and more compact. It is composed of dark coloured schist and quartz strings. There is no ore at present.

**60 WEST, BOTTOM STOPES.**—The ore from this station, having fallen off in grade, it has been decided to discontinue its further extraction for the present.

**60 EAST RISE.**—This trial is being carried forward with the object of holding into the Esperanza shaft, now being simultaneously sunk towards the 60. Only a few feet of ground intervene, and we hope to break through before very long. The lode both in the rise and shaft is small and quite poor. As explained in my previous reports it will be in depth that this shaft may be expected to strike ore. Pending the completion of the hoisting just referred to the 60 east.

**60 EAST** is temporarily suspended.

**60 EAST, BOTTOM STOPES.**—A fine course of high grade mineral exists on the eastern extension of the bonanza. This ore is following the hanging-wall of the vein at the big junction, which corresponds to the south lode in its downward direction. Assuming its continuance it will, therefore, dip to the north of our workings in the 70 east in depth, the south lode having a much flatter underlie than the main lode. At present the appearances are the following:—Against the north or hanging-wall there exists a quartz formation 12 in. thick running parallel with the wall. Adjacent to the quartz is a parallel course of almost solid argenticiferous ore, rich in red argenticiferous ore, which is gradually diminishing eastwards. Abutting against this is a mass of partially productive vein matter, principally schist and quartz, 9 to 10 ft. in width, and between this and south wall there is a flookeny branch from 1 to 2 ft. in width, carrying a 3 in. string of ore, principally blende. The footwall is a polished, striated face, overlying a thin crush (¼ in.) of galena and pyrites. The yield may be estimated at about 5 tons per running fathom of 500 ozs. per ton as it now appears.

**50 EAST CROSS-CUT** at a distance of 68 ft. from the main level has intersected a vein of quartz, which in dip and appearance corresponds with the south or Welton's lode. In position and bearing it does not quite agree with this lode, but the vein will be further explored to clear up this point. It is at the point of intersection quite poor.

**40 WEST.**—This level has been driven 38 fms. from shaft to date. The vein is not yet entirely taken down to its full width. It is composed of schist and quartz freely charged with pyrites.

**20 SOUTH-WEST.**—This end is presumed to be within 2 fms. from the west cross-course. The vein is composed of siliceous schist and quartz, and carries a 2 in. string of ore half-way down the level, the sole at the forebore being poor, as a few fathoms further east the sole was the richest; this confirms the supposition previously formed as to the rapid easterly throw of the ore.

**20 RISE.**—This is being carried upwards in the expectation of holding into the old workings under the adit. In consequence of bad ventilation progress is slow, however. In the roof of the rise there is a good branch of ore 6 to 10 in. in thickness.

**SUNDAY TRIALS.**—There is no change or discovery to note of importance from the incidental trials not specially referred to herein. Taking the mine all through the appearances are satisfactory both as regards the productive and unproductive section of the vein in operation. It is important to proceed with the development of our deeper workings with all possible speed, and this is a point which is being urged on as fast as circumstances will permit.

**SABANILLA MINE.**—Steady progress has been made in the driving of the 12 east and west levels, but I am not able to report any improvement in the yield of the vein, although the lode has increased somewhat in size and strength in both ends.

**12 FM. EAST.**—The vein is 3 ft. in width, composed of quartz and granite with occasional spots and small strings of mineral, but not to value. The ore appears to be richer in the sole of the level.

**12 FM. WEST.**—The ore reported in my previous communication has pinched out, the end being at present quite poor. The vein is 3 ft. wide from wall to wall, consisting of quartz and granite, and letting out much water.



## Mining Correspondence.

## BRITISH MINES.

**BEDFORD UNITED.**—H. Trease, Feb. 28: There is nothing to new speak about on the north lode. The 103 west is worth 6s. per fathom, or 2 tons of ore, and the tribute pitches are looking fairly well. Fair progress is being made in sinking McCallan's shaft, and I hope in the course of a fortnight to see the lift of shaft completed to the 75. The lode in the 62 west is the full size of the end, composed of capels, munde, and ore of good quality. In the same level east the lode is 2 ft. wide, of a promising character. Two stops at this level are worth respectively 6s. per fathom, or 2 tons of ore. In the 42 east the lode is not taken down, but appears to be strong and masterly in appearance. No. 1 slope in the back of the 42 is worth 20s. per fathom, or 6 tons of ore. No. 2 is worth 2 tons of ore or 7s. per fathom. No. 3 is worth 2 tons of ore, or 7s. per fathom. The several tribute pitches on this lode maintain their value, and the prospects of the mine are very encouraging.

**BWLOH UNITED.**—W. Northey, Feb. 28: Good prospects have been made in sinking the trial shaft on the course of the lode. I am pleased to state that the lode is about 2 ft. in width, composed of carbonate of lime, amber, quartz, and patches of lead ore, &c.—in fact, the lode is of a very encouraging character, and I am daily expecting to enter into the production of silver lead ore. The pumping machinery is kept working regularly and in fair order.

**CARN CAMBORNE.**—W. C. Vivian, Feb. 28: The appearances in the 105 east and west of engine-shaft cross-cut, on the south lode, are not so encouraging as they have been; but as the winze sinking under the 95 presents good indications, I am hoping that on pushing the 105 a little further west the lode will be found of good quality. The winze under the 95, west of sump, is now down 4 fms., and the lode looks very promising for an improvement. It has become coarse and rubby, and is yielding black and yellow copper ores. The communications of this winze with the 105 will afford ventilation, and also it is to be hoped lay open valuable mineral ground for stoping, which may afford good sales for the future.

**CASHWELL LEAD.**—John Peart, Feb. 23: The heading in copper haze next to the drift forward going west contains some good ore in the drift roof, but is much straighter higher up and not so much ore; taking the four fathoms in height it varies from 1½ to 3 ft. wide, and will average 1 ton of lead ore per fathom all the height. The heading in this stratum going east from the air rise is 4 ft. wide at the drift roof, and as it gets near the top is about 2 ft.; the low part is rich in places but gets poorer towards the top; the ore is not regular but is worth 1 ton of ore per fathom on an average all the height. The drift in copper haze going east is more lively this week; we have got some samples of ore, but still very hard. I may say the object of driving this drift is to lay open the scar limestone east in whole ground. The rise in silver haze is hard but plenty of vein; it is at least 5 ft. wide, and if it were to turn softer we might soon get into good ore; at present it is worth 6 cwt. per fathom.

**D'ERESBY MOUNTAIN.**—W. Sandoe, Feb. 27: Monthly Report: The new surface shaft is now down about 13 fms. deep, and leaves us about 1 fm. 5 ft. more to sink to reach the top of the rise in the roof of No. 4. We shall be a little nearer to that point to-day but for the extra trouble we have had with the water during the late heavy rains. The weather is now more dry, and the water in the shaft less, and I think at the present rate of sinking that we shall communicate with the rise in No. 4 in a month hence. The lode here is a very kindly one, and will yield about 1½ ton of lead and ½ ton of blende per fathom. The new shaft sinking below the No. 4 is progressing very fairly; we are now down about 8 fms. The lode here yields a mixture of lead throughout, worth about ½ ton per fathom, with also a little blende, but we have a much better lode standing in the south end of the shaft for 4 fms. high, worth fully 1 ton of lead ore per fathom, and are thus laying open some excellent stoping ground at this point. There is no change to notice at No. 6 either in the lode or the ground; it still keeps hard, and the lode rather poor for lead. This refers to part of lode which we carry in the rise. There are indications which well assure us that there is a good lode standing close to us towards the hanging side, and which we can quickly deal with as soon as the shaft is down. The rise here is now up about 5 ft. above the No. 5 sump, which shows that we have now about 7 fms. 5 ft. of ground between this point and the bottom of the shaft at No. 4, and by the present rate of working I fully expect to communicate here by the end of April (two months) again. All our surface work in connection with this shaft is being pushed forward as fast as possible in order to be ready for winding as soon as the shaft is finished.

**DEVON FRIENDSHIP.**—E. B. D. Day, Wm. Gill, Feb. 28: There is not any change of importance to report this week on the points underground. The calciner is working well. We shall have about 50 tons of arsenic for the next sale.

**DEVON GREAT CONSOLS.**—Isaac Richards, Feb. 28: Wheel Emma, New Shaft, New South Lode: In the 205 east the lode part carrying (4 ft. wide) is yielding 3 tons of munde per fathom, with a little good quality copper ore.—Ballway Sh-ft: In the Ballway shaft sinking below the 205 the ground continues without important alteration. In the 205 west on the south part of the lode the lode part being carried 2 ft. wide yields a little copper and munde ore of good quality. In the 180 west on the south part of the lode the lode is 2 ft. wide, and at present is somewhat disordered by a small cross-course.—Watson's: In the 112 east and west of the engine-shaft the lode is 3½ ft. wide, and yields 2 tons of copper and munde ore per fathom. In the 100 west of the engine-shaft the lode is 1½ ft. wide, composed principally of capel, quartz, with small quantities of copper and munde ore. In the 20 east of the western shaft the lode is 2 ft. wide, of a promising character, and yields a little good quality copper and munde ore.

**DEVON GREAT UNITED.**—Isaac Richards, Feb. 28: In the 120, east of Willford's shaft, the lode is 4 ft. wide, of a very promising character, and continues to yield some copper and munde ore of good quality. The distance driven during the past month is 4 ft. 6 in. In Pengelly's rise, in back of the 120, west of Willford's shaft, the lode is 3 ft. wide, composed of very strong capel, quartz, peach, munde, and a little good quality copper ore. The distance risen during the past month is 1 fm. 4 ft. 7 in. In the 104, west of Willford's shaft, the lode is 3 ft. wide, worth 4 tons of copper and munde ore per fm.; the distance driven during the past month is 2 ft. 6 in. In the 103, east of shaft, the lode is 4 ft. wide, and yielding 2½ tons of copper and munde ore per fm.; the distance risen during the past month is 2 ft. 6 in. In the 102, east of shaft, the lode is 3 ft. wide, and yielding 1 ton of ore per fathom. The rise in the back of this level is yielding 3 tons of ore per fathom. We shall commence by the latter part of this week to sink Gundry's shaft below the 120 in a lode 4 ft. wide, which will yield 1½ ton of ore per fathom. The stopes throughout the mine are just the same as when last reported. Our samplings for this month is composed of 61 tons of copper ore.

**EAST BLUE HILLS.**—Bennetts, W. K. Mitchell, Feb. 27: The sinking of the shaft below the 42 is progressing satisfactorily, and the lode is looking highly promising, it being 2 ft. wide, and worth for the length of the shaft (9 ft.) 20s. per fathom, and is letting out water freely. The four stopes now at work above the adit are worth in the aggregate 25s. per fathom.

**ETON.**—Wm. Bowman, Feb. 28: Since my last report we have been favoured with a week of fine weather, and outside work has progressed rapidly. Underground the several development works have been considerably advanced, and have shown changes of interest from time to time. The driftage north-west from Clayton deep adit, upon Vian's vein, has intersected another cross vein, bearing nearly east and west, containing both copper and lead ore in branches and spots. This vein is considerably stronger towards the sole of the level, and as we have still some distance to drive before intersecting the quarry vein (according to the old survey) we may expect to cut that vein very shortly. In Eton West, at Salt's level, our miners have cut about 6 ft. into the Lier Alley cross-course. The part taken out contains lead and copper ore, and the fore-blast looks promising for large quantities of the latter mineral. An improvement in richness may be expected as we get near the footwall, or western side of the vein. Our eastern cross vein has not intersected Clayton shaft to the 30, and we have completed footway to this depth, through the northern part of the workings, into the western level, and are preparing to erect a 9-in. plunger-lift in the south end of the engine-shaft for the permanent drainage of all the works to this depth. So soon as this work is clear of the level, our steam-pump will again start for the purpose of draining to the 50, whilst our shaftmen are completing the permanent plant up to adit level. The water at the 20 is held up by two reservoirs, one in the east and the other west of the engine-shaft. We have put in a line of wooden conveyance this water into a reservoir at the 30, to be connected with the plunger-lift. These works, along with the ladder-way, pass through a winze to the north of engine-shaft, leaving the latter free for pumping and winding machinery. The Clayton vein increases much in strength as we go down, and has evidently produced large deposits of copper about the 30; but of this I shall hope to say more in future reports.

**FLORIDA.**—R. Couch, Feb. 28: Since my last report we have completed the tram-road in the 30 (bottom level) to shaft, and the lode is fully maintaining its size and value.

**GAWTON.**—G. Rowe, Feb. 28: The lode in the 117 east is showing the same kindly appearance as for some time past, yielding 1½ ton of arsenical munde and 1 ton of copper ore per fathom. No. 1 slope, in the back of the 117 east, is worth 5 tons of munde and ore per fathom. No. 2 slope, in the back of the same level, is yielding 12 tons of arsenical munde per fathom. The stopes in the bottom of the 105 east is yielding 6 tons of munde per fathom. The stopes in the back of the 105 east is yielding 7 tons of munde and ore per fathom. The lode in the rise in the back of the 105 east is 4 ft. wide, composed of capel, munde, and ore, yielding 3 tons per fathom. The lode in the 95 east is showing a better appearance, producing good quality arsenical munde, mixed with a little copper ore. The stopes in the back of the 82 east is yielding 9 tons of munde per fathom. The rise and stopes in the back of the same level, west of shaft, is yielding 10 tons of munde per fathom. The lode in the 70, west of shaft, is 7 ft. wide, and yielding 7 tons of munde per fathom. Nos. 1 and 2 stopes, in the back of the 70 east, are yielding 10 and 12 tons of munde per fathom. The lode in the rise and stopes in the back of the 60 is yielding 9 tons of munde per fathom.

**GRASGOW CARADON CONSOLS.**—Wm. Taylor, W. J. Taylor, Feb. 25: The sinking of E. lode's shaft is being pushed on, as little delay as possible. We set on Saturday a bargain to complete it to the 125 in two months from this date; we shall then only have a short distance to cross-cut first on Harvey's lode, and then on to south lode, on both of which we have now going down on the bottom of the 114 for a considerable length very good ore ground, varying in value from 5s. to 25s. per fathom, but which we cannot follow until drained by this deeper level. We have every reason to expect at the 125 these lodes will still further improve, and the opening of which will be attended with profitable results. The 114 west on Harvey's is producing good stones of ore in more favourable ground, and we look for speedy improvement. In the 92 west we are rising in the back to open ground for stoping now worth 7s. per fathom. Stopes in back of this level worth 8s. to 10s. per fathom respectively. No change to notice in the tribute pitches.

**GREAT HOLWAY.**—W. T. Harris, Feb. 28: Roskell's Shaft: The 55 north has been extended 3 fms. 4 in. through ground similar in character and composition as for some time past; rich stones of lead are frequently met with in course of progress, and present prospects encouraging in the extreme; set to six men, at 17s. per fathom.—Level Engine-Shaft: The 50 east pitch, in the back, by four men, at 12s. per ton of lead and 4s. per ton of blende; in the back, by four men, at 6s. per fathom.—Tribute: No. 1 pitch, in the back of this level, continues to look well, and yielding 4½ tons of lead and 1½ ton of blende per fm.; set to 12 men, at 40s. and 30s. per ton respectively. No. 2 pitch, in back, is a splendid run of lead, worth 5 tons of lead and 1½ ton of blende per fathom; set to 12 men, at 40s. and 30s. per ton respectively. No. 3 pitch, in the bottom of

this level, is producing 10 cwt. of lead and 1½ ton of blende per fathom; set to six men, at 12s. and 40s. per ton respectively. No. 5 pitch, in the bottom, is producing 1 ton of lead and 2 tons of blende per fathom; set to six men, at 4s. per ton the first and 40s. per ton the latter. No. 6 pitch, in the back of this level, is yielding 10 cwt. of lead and 1 ton of blende per fathom; set to four men, at 12s. and 40s. per ton respectively. No. 9 pitch, in bottom, is worth 12 cwt. of lead and 1½ ton of blende per fathom; set to six men, at 12s. per ton the former and 40s. per ton the latter. No. 10 pitch, in back, is improving; worth 1½ ton of lead and 1 ton of blende per fm.; taken by six men, at 10s. and 40s. per ton respectively.—Office Shaft: The pitch in the back of the 80 west is worth 10 cwt. of lead and 1½ ton of blende per fathom; taken by four men, at 12s. per ton the former and 40s. per ton the latter. Machinery in good condition, and working satisfactorily. The new boiler acts splendidly, and fuel much economised compared with the old boiler. Dressing and surface work making usual progress. Have sold 74 tons 10 cwt. of lead and 52 tons 16 cwt. of blende, realising 883s. 1s.

**GREAT LAXEY.**—W. H. Rowe, Feb. 27: The lode in the 271 and north is strong, and contains a little blende and iron pyrites. The three stopes in the roof of 259 are of the respective value of 8s. 6d., 10s. per fathom. The improvement in the 247 end continues, the lode being still worth 10s. per fathom. The joint rise and stopes in this level has fallen off in value, and we shall shortly place these men to better ground in the level above. The 235 end south of engine-shaft is again quite poor. Wagon road being now laid in this level we have started to rise where the lode for a short length is worth 15s. per fathom. The end driving north towards Dumbell's shaft is worth 10s. per fathom. There are no changes to notice in the other workings in the deep mine.—Dumbell's: The 230 end north is worth 20s. per fathom; the joint rise and stopes 12s. per fathom. A sink in 215 20s., and a new sole stopes 30s. per fathom. The rises and stopes in this level are worth respectively 15s., 12s., 10s., 25s., and 10s. per fm. The four joint rises and stopes in the 200 are worth 30s., 35s., 18s., and 10s. per fm. The 185 end is worth 15s. per fathom and improving. The 170 end north is also improving, and worth 20s. per fathom. The two stopes in roof of 85 north are worth 40s. and 20s. per fathom. The joint rise and stopes in the 60 north has improved to 30s. per fathom, and the stopes in roof of 70 south (middle ground) 18s. per fathom. The lode in the adit end north continues poor and showing spots of blende only.

**GREEN HURTH.**—James Polglase, Feb. 21: No. 3 winze is communicated to the 44 end, north of Swan shaft. The vein in the end is worth about 2 tons per fathom. No. 1 slope is worth 2 tons per fm.; No. 2, 1 ton per fm.; No. 3, 3 tons tons per fm.; No. 4, 3 tons per fm. The stopes in back of Standage level is worth 3 tons per fm. The vein north of heave became poor, but is again improving, worth at present ½ ton per fathom, and from appearances is likely to be more productive. We have commenced clearing and repairing the east end towards Boder Mea. The very stormy weather interfered with our dressing for some days, but we are now going on in the usual way.

**HEALEYFIELD.**—J. Trelease, Feb. 22: It has been decided to drive the cross-cut from the Whitwell shaft to the Derwent level, and I have let a contract to eight men to drive the same, at 6s. 10s. per fathom. Our tribute bargains in the old mine still continue about the same, worth respectively 15, 15, 12, 8, 7, and 11 cwt. of lead ore per fathom. Dressing going on as usual. We hope to get another 15 tons of ore ready by next board meeting.

**HINGTON DOWN CONSOLS.**—Thomas Richards, Feb. 27: In the 52, east of the engine-shaft, the lode is showing a better appearance, becoming more settled, and there are signs of an improvement. The men have been removed from the 40 east to drive a cross-cut south towards the No. 2 lode at the 52.

**KIT HILL GREAT CONSOLS.**—Isaac Richards, Feb. 28: At the tunnel level the ground continues the same as last reported, and the distance driven during the past month is 24 fms., making the total distance 244 fms. 3 ft. 9 in. The lode in the north engine-shaft is 6 ft. wide, composed of a very fine capel, with quartz, peach, prun, munde, blende, and some saving work of tin ore. The distance sunk during the past month is 2 fms. 1 ft. 9 in., making the total depth 7 fms. 4 ft. below the 83. In the 88, both east and west, the lode is large, from 5 to 6 ft. wide, of a most promising character, and yielding a little tin ore. The distance driven east during the past month is 2 fms. 2 ft. 6 in., and west 1 fm. 3 ft. 1 in. In the 75 west the lode is 4 ft. wide, of a most promising character, also yielding a little tin ore. The distance driven during the past month is 1 fm.

**LANGELYNN.**—O. Evans, Feb. 28: The end in the No. 1 level has become rather poor at present, but in about 2 fms. further driving we shall come under the rich run of ore found in the shallow level above. The lode in the south end of No. 2 level is not so large, and the blende is rather more mixed with spar and lead this week. We have cut into a vugh to-day, and I expect the lode will open into a large body of ore again. The ground is easily worked, and we make good progress.

**LEEL.**—J. Frisk, Feb. 28: Air Shaft: The lode in the 14 fm. level, west of shaft, is a little disordered for the present, and is not producing so much tin as when last reported on, but I consider the change to be only temporary. The lode in the stopes in the back of the 14 is worth 6s. per fathom. The lode in the shaft sinking below the 14 is very much improved in the last few days, it is 5 ft. wide, worth 12s. per fathom, and looking exceedingly well.—Engine Shaft: The lode in the 14, east of shaft, is 6 ft. wide, producing low quality tin-stuff, and from its general appearance I think is likely shortly to improve. The lode in the 14, west of shaft, is 6 ft. wide, worth 7s. per fathom. The lode in the whole mine is opening out very satisfactory, and the monthly sales increasing.

**MARKET VALLEY.**—W. George, Feb. 28: Wheel Jenkin: We have to-day picked into the capels of the lode in the 25 cross-cut driving north from Bellingham's shaft. The wall appears to be regular and well defined, letting out a good stream of water; and I hope to be able to report upon the character and value of the lode in a few days. We are making satisfactory progress in taking up the shaft from the lower part of the mine.

**MELLYNAR.**—John Gilbert, Feb. 20: There is no change to notice in the ground in the 30 cross cut driving south of Gundry's shaft. We are meeting with small branches of munde and blende in the 70 cross-cut north of the main lode, and the rock is letting out a little more water. The 80, east of Gundry's shaft, on the south part of the lode, is still yielding ½ ton of copper ore per fathom. The lode in the 100, west of shaft, is 5 ft. wide, and yielding 2 tons of ore per fathom. The rise in the back of the 110, west of shaft, is yielding 2 tons of ore per fathom, and some saving work for tin. In the 110, east of shaft, the lode is 4 ft. wide, and yielding 2½ tons of copper ore, and looking very promising. The rise in the back of this level is yielding 2 tons of ore per fathom. In the 120, east of shaft, the lode is 3 ft. wide, and yielding 1 ton of ore per fathom. In the 120, west of shaft, the lode is 4 ft. wide, and yielding 1½ ton of ore per fathom. The rise in the back of this level is yielding 3 tons of ore per fathom. We shall commence by the latter part of this week to sink Gundry's shaft below the 120 in a lode 4 ft. wide, which will yield 1½ ton of ore per fathom. The stopes throughout the mine are just the same as when last reported. Our samplings for this month is composed of 61 tons of copper ore.

**MID-DEVON.**—James Neill, Feb. 23: A Shaft: Sunk by 12 men, three with rock drill and nine by hand labour, in 3 in.; total distance below the 83 is 20 fms. 5 ft. 4 in. On Wednesday at 20 fms. one of the surface rods broke, which delayed the pumping 3½ hours. Since then we have not been able to work in shaft owing to the accumulation of water; it is now drained to within a few feet of the bottom, and hope to resume sinking on Monday next.—O Shaft: The A shaftmen have been employed since Thursday in driving the 59 east towards the slide with rock-drill, and have extended it 3 ft. The strata is rather hard, but expect as we near the slide, which is about 4 fms. distant to find it much easier. The stopes in back of cross-cut north, worked by four men and four boys, is hard and contains a deposit of rich copper ore, and is not at present, and more than 2 tons of ore per cubic fathom. I expect to improve again as the points in the rock are coated with ore, and in the highest point the strata is apparently easier.

**NEW CARADON.**—S. Richards, Feb. 27: For the last few days the men have been securing a break found in the shaft, which has somewhat retarded our progress, but it is now completed, but the shaft is still full of debris, nor do we now expect to find it otherwise until we reach the 20, where it is thought it was covered over. The shaft is now secured about 17 fms. 3 ft. below the adit level. The 20 driving east of Thomas' shaft is 2 ft. wide, and yielding 2 tons of ore per fm. The lode is 3 ft. wide, and yielding 2 tons of ore per fm. In the rise in back of the 110, east of shaft, the rise in back of the 120, west of shaft, the lode is 3 ft. wide, and yielding 3 tons of ore per fathom, but very wet and troublesome for breaking. The rise in back of the 120, for Gundry's shaft on the course of the lode, is communicated to the 110, and the shaftmen have begun to sink the shaft below the 120.

**NEW TERRAS.**—J. D. Fraser, T. Edwards, Feb. 28: We are pushing on with the dressing-floors and other surface operations, but the almost continual rain interferes much with our operations. We have commenced in driving the adit, and find the ground of a favourable character for driving. In this level to the engine-shaft we shall intersect several lodes, which will doubtless be found productive. The ground in the bottom cross-cut at the engine-shaft is of a very congenial character for the production of tin, and there is still a considerable flow of water from the end. The stamps are doing admirable work.

**NEW WEST CARADON.**—S. Richards, Feb. 27: Fair progress is being made in driving west of Hallett's cross-course at the 38 on the last lode intersected; the lode, however, is without any particular change to notice since reported on last week. Similar remarks will apply to No. 5 lode, which is being driven on east at this level by a full party of men.

**NORTH BLUE HILLS.**—S. Bennetts, Feb. 27: The north lode in the adit west end is without any material alteration during the past week. It sometimes contains a quantity of munde, coated with copper ore, and also occasionally good stones of tin; but the lode continues a fall so far as we have yet seen it.

**NORTH BUSY UNITED.**—Jno. James, Feb. 28: We have opened on the new tin lode east 4 fms.; lode varying in size from 2 ft. to 12 in. wide, producing good tin-stones. For the last 6 ft. driving the lode has been disordered by a copper branch, which produces stones of tin. The lode in the west end, and the ground of a favourable character for driving. In this level to the engine-shaft we shall intersect several lodes, which will doubtless be found productive. The ground in the bottom cross-cut at the engine-shaft is of a very congenial character for the production of tin, and there is still a considerable flow of water from the end. The stamps are doing admirable work.

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**NORTH PENSTRUTHAL.**—S. Davey, Wm. Polkinghorne, Feb. 28: Setting Report.—Highburrow Stope: To sink below the 150, by 12 men and four boys, at 30s. per fathom; sunk last month 2 fms. 4 ft.; now below the 150 7 fms. 3 ft.; good progress is being made in sinking. The 150, to drive west, by six men, at 5s. 6s. per fathom; driven last month 4 fms. 2 ft.; lode 4½ ft. wide, composed of capel, quartz, chloride, and producing some rich tin-stone. We are daily expecting a further improvement in this end from the good indications present in the 150 east end, at 5s. per fathom; driven last month, 3 fms. 5 in.; lode 2 ft. wide, producing a little tin. The water from the late heavy rains has considerably increased; but pleased to say we have no difficulty in keeping the mine drained. The pitwork and machinery are in good order.

**NORTH TREKERRY.**—Pryor and Son, Feb. 21: The ground in the deep county adit cross-cut, driving north of Scorrer Consols engine-shaft, continues much the same as reported on last week, and the men making fair progress in driving. No. 2 lode, driving west of cross-cut, is still worth 17s. per fathom. We expect shortly to meet with a cross-cut in this end. The men in Jaber's shaft are making good progress in sinking, and No. 2 lode is now coming in the shaft, from which we have this day broken some good stones of tin, but it will take a little time before the whole of the lode will come in the shaft, which is about 13 fms. in advance of the adit level, on No. 2 lode, and an improvement may shortly be expected in this shaft. These two points are being pushed on to accomplish the objects we have before stated. No. 1 lode, east of this cross-cut, continues to be worth 15s. per fathom. From this it can be seen that our points maintain their value, which makes very anxious to effect the communication of Jaber's shaft to the deep adit level. The engines and four men are engaged in taking out the steam capstan now at Wheel Prussia Mine, which will be delivered here in the early part of next week, against which, should the weather prove favourable, the mason work for same will be in course of erection. The steam capstan, with all its appliances, is quite equal in value to new, as if it were being sent direct from the foundry; and should the weather be fine the granite loading for the winding-engines will also be ready to receive the same by the end of next week. All other surface work is being pushed on as fast as the weather will permit. Saturday next being our pay and setting, a detailed report shall be sent you.

—Pryor and Son, Feb. 28: Saturday last being our pay and setting day we have again set the following bargain: The deep county adit cross-cut to drive north of Scorrer Consols engine shaft and of No. 4 tin lode, by four men and two labourers, at 5s. 10s. per fm. The driving of this will be pushed on as fast as possible to reach No. 5 and 6 lodes, both of which can be seen in the shallow adit level, at which point they present equally as good an appearance as the lodes already intersected in the deep county adit level.—Nos. 1, 2, 3, and 4, which have proved so productive for tin—the extending of this cross-cut need not be called a speculation, but a certainty. The deep adit level to drive west of cross-cut, by four men, at 3s. 5s. per fathom, where the lode is 3½ ft. wide, and worth 25s. per fm. We may remark since our last report we have met with a little cross-course, to the west of which the lode has greatly improved. This end will be pushed on with all possible speed to get under Jaber's shaft. To stop the back of the deep adit level east of cross-cut on No. 1 lode, by four men, at 3s. 5s. per fathom, in a lode 3 ft. wide, and worth 16s. per fathom. Jaber's shaft to sink below the shallow adit level, by six men and two labourers, at 4s. 15s. per fathom, where the lode is 3 ft. wide, and producing good stones of tin; the sinking of this shaft being of the greatest importance for ventilating the deep adit level, so as to enable us to open on Nos. 3 and 4 tin lodes, which are rich for tin, we have promised the men in this shaft a premium of 25s. If they can effect the communication to the deep adit within five weeks. There is a little water in the shaft, but if it does not increase we think this important work will be accomplished. The steam capstan and winding gear have been taken out and brought on this property without the slightest accident, the whole of which being quite as good as new delivered direct from the foundry; in fact, it is the best that ever we have seen. The weather during the past week has proved rather against us in building the loading for this and the winding-engines, in consequence of which we have not made that progress that we expected, but this as well as other surface work is being pushed on as fast as circumstances will permit.

**PHILIPPS FOR.**—H. Bulford, J. Rodda, Feb. 28: We have nothing fresh to report at the 90, owing to the stopping of our pumping-engine for the last nine days, undergoing repairs. We have put in new nozzles, and otherwise put the engine in thorough condition, which will effect a great saving of coal; we are now pumping again, having successfully started it this morning, and hope to get the water out, so as to be in full work again at the 90 in six or seven days; in the meantime the men are employed in stoping some ground for munde in the 65 and 50 fm. levels.

**PHILIPPS AND WEST PHENIX UNITED.**—J. Truscott, Feb. 28: Setting Report.—Old Sump Shaft: The 130 to drive west, by four men, at 12s. per fm. lode worth for part carried (6 ft.) 4s. per fathom. To stop the back of this level by four men, at 2s. 10s. per fathom; worth 10s. per fathom. The 120 to drive west by two men at 8s. per fathom; lode at present unproductive. To stop the back of this level, by four men, at 4s. 10s. per fathom; lode worth 15s. per fm. To stop the back of the 110, by four men, at 2s. 10s. per fathom; worth 12s. per fathom. The 80 to drive west, by four men, at 12s. per fathom; lode worth for part carried (6 ft.) 3s. 5s. per fathom. To strip out the side of the level, by two men, at 3s. 5s. per cubic fathom. No. 2 slope, in the back of this level, by four men, at 4s. 10s. per fathom; lode worth 20s. per fathom. To cut out the north part of the lode at the 60 near the present adit, by two men, at 4s. per fathom; lode worth 5s. per fathom. No. 1 slope in the back of this level, by four men, at 1s. 15s. per fathom; lode worth 14s. per fathom. No. 2 slope in the back of this level, by four men, at 2s. 5s. per fathom; lode worth 15s. per fm. No. 3 slope in the back of this level, by four men, at 2s. 5s. per fathom; lode worth 14s. per fathom. The 50 to drive west, by four men, at 8s. per fathom; lode worth 10s. per fathom. To stop the back of this level, by four men, at 4s. 10s. per fathom; lode worth 15s. per fathom.—Western Part.—New Engine Shaft: The 70 to drive west, by four men, at 13s. per fathom; lode at present unproductive. The 60 to drive west, by four men, at 6s. 10s. per fathom; lode of a promising character, but not sufficient to value. The 50 to drive west, by four men, at 12s. per fathom; lode worth 12s. per fathom. No. 1 slope in the back of this level, by four men, at 4s. 15s. per fathom; lode worth 12s. per fm. No. 2 slope in the back of this level, by four men, at 4s. 15s. per fathom; lode worth 18s. per fathom. No. 3 slope in the back of this level, by four men, at 4s. per fathom; lode worth 14s. per fathom. No. 4 slope in the back of this level, by four men, at 3s. 15s. per fathom; lode worth 10s. per fathom. No. 5 slope in the back of this level, by four men, at 4s. 15s. per fathom; lode worth 10s. per fathom. No. 6 slope in the back of this level, by four men, at 4s. 10s. per fathom; lode worth 15s. per fathom. The 40 to drive west, by four men, at 8s. 10s. per fathom; lode worth 35s. per fathom. To sink a winze in the bottom of this level, by four men, at 7s. per fathom; lode worth 12s. per fathom. No. 1 slope in the back of this level, by four men, at 3s. 10s. per fathom; lode worth 15s. per fathom. No. 2 slope in the back of this level, by four men, at 3s. 10s. per fm.; lode worth 10s. per fathom. No. 3 slope in the back of this level, by four men, at 4s. 10s. per fathom; lode worth 20s. per fathom. No. 4 slope in the back of this level, by three men, at 4s. 10s. per fathom; lode worth 12s. per fm. No. 5 slope in the back of this level, by three men, at 5s. per fathom; lode worth 9s. per fathom. No. 6 slope in the back of this level, by three men, at 3s. 10s. per fathom; lode worth 10s. per fathom. The 20 to drive west, by four men, at 13s. 10s. per fathom; lode worth 10s. per fathom.—Stowe's Shaft: To stop the back of the 60, east of this shaft, by three men, at 3s. 2s. per fathom; lode worth 18s. per fathom. We set seven pitches at tributes varying from 3s. 6d. to 13s. 4d. in 15 ft. tin and copper.

**PHILIPPS AND WEST PHENIX UNITED.**—J. Truscott, Feb. 28: We beg to acquaint you that on the 14th inst. we had two good improvements in the western part of our mines. The 40 had increased in value to 30s. per fathom, and the 20, recently resumed, is worth 10s. per fathom; the ground from the 20 is now level to surface (the back being 60 fms.). On the 20th inst. the lode in the 40 fm. level had increased in value to 35s. per fathom, having a fine appearance, and we are pleased to state that to-day the 40 is worth 35s. per fathom, and the 20 is worth 10s. per fathom.

**PHILIPPS AND WEST PHENIX UNITED.**—J. Truscott, Feb. 28: We have now finished laying down the pump for bringing the water on to the wheel, and have also fixed the column at the end of the wheel pit to raise the water over the wheel; the masons are now engaged laying sanitary pipes from the pumps up to the point where the water will flow in an open lead; they will finish this on Monday next, if the weather will permit. We have also set the shaft to sink to a Northumberland sinker; he will take the entire charge of the shaft, and by employing a greater number of hands, and changing the shape of the shaft from an oblong to a circular shape, he thinks he shall make far greater progress than we have in the past; he is now making the necessary alterations in the drawing and other appliances, and hope to make a start on the new principle next Monday. If the new principle succeeds as well as is anticipated, it will be a great boon to many of the Cornish mines, as the same amount of sinking will be done in less than half the time, which will be a very important item where the pumping charges are heavy. In cutting the trench for the sanitary pipes we have crossed a vein composed of quartz and gossan, very similar in character to the large lode to be seen about ½ mile to the north, as soon as we get our wheel to work and have a little time, I think we will be able to open up and ascertain its proper run and dip; its present position is not far from where it was calculated we should find the large lode referred to above. The weather is still very wet, and the carpenters have not been able to work much about the wheel this week.

**POLCREBO.**—W. H. Martin, Feb. 27: On Saturday last I set the following bargains:—The 40 to drive east, by six men, at 2s. per fathom; the lode presents similar characteristics in the 30 east before we intersected the rich lode. The 40, to drive west, by four men, at 3s. per fathom; the lode has a strong appearance, and producing fine stones of tin. The 30 to drive east, by six men, at 8s. 10s. per fathom; the lode is over 5 ft. wide, and its general character is exceedingly promising, and has every appearance of a long continuation, water flowing freely all over the breast. In the bottom of the 30 west a winze to sink, by two men, at 2s. 15s. per fathom; the lode maintains its former value. In the south cross-cut,



the other south of Roberts' winze, are together worth 5 tons per fathom. The 80 south is in a lode 3 to 4 ft. wide, and worth 3½ tons per fathom. The five stopes in back of this level, three south and two north of Jones' winze, are together worth 13 tons per fathom. The 80, north of old engine-shaft, is worth 1 ton per fathom. The stope in back of this level, north of Glover's winze, is worth 2 tons per fathom. The stope in back of the 50, south of new engine-shaft, is worth 1½ ton per fathom.

**RUSSELL UNITED.**—John. Br., Feb. 28: We have finished casing and dividing the footway at Matthews' shaft, also driven a level west about 5 ft. for the protection of the men when we are hauling the stuff with the whim-kibble from the bottom. Shall commence sinking the shaft on the lode to-night, particulars of which you shall have next week. At Stephen's engine-shaft the round continues much the same as when last reported. Shall begin to cross-cut south to the lode at the 45 on Tuesday next.

**SOUTH CARADON.**—W. George, Feb. 27: Setting Report: Rule's Shaft: To drive the 210 east by nine men with the boring machine; driven during the past month, 9 fathoms: lode presenting a promising appearance and producing saving work. To drive the 180 east on a north part of the lode by four men at 10 ft. per fathom; from indications here I think an improvement may shortly be expected. Kittow's Shaft: The pitwork has been removed, and the men are now employed in taking up the man-engine rods from Jones'. To drive the 180 east by six men at 10 ft. per fathom; lode rather disordered, but from the changing character of the ground, and an early improvement. To drive the 170 east by six men at 10 ft. per fathom; lode 1½ ft. wide, yielding 2 tons of ore per fathom. To drive the 160 east by four men at 5 ft.; lode 2 ft. wide, yielding 3 tons of ore per fathom. In the winze below this level, started just before our last setting, the lode has been very speedy, and worth from 2 to 3 tons of ore per fathom; this being nearly low enough for the 170 is suspended. To stop the bottom of this level by four men at 4 ft.; lode yielding 1½ ton of ore per fathom. No. 1 stope in the back to six men at 24 ft.; yielding 2½ tons of ore per fathom. And No. 2 stope to four men at 4 ft.; yielding 1½ tons of ore per fathom. To drive the 150 east by four men at 4 ft.; lode 1½ ft. wide, yielding 1½ ton of ore per fathom. The winze below this level has been communicated with the 150, and the six men are put to stop the back at 24 ft.; lode yielding 2 tons of ore per fathom. To drive the 120 east by four men at 10 ft.; yielding 1 ton of ore per fathom. To stop the back of this level by four men at 24 ft.; yielding 3 tons of ore per fathom. The rise in the back at the 110, on south part of counter lode, is suspended, and two pitches are set to four men at 10 ft. in 11. To drive east from the 110, lode 1½ ft. wide, yielding 1½ ton of ore per fathom. When this is communicated with the eastern rise the ground above and below this drive will be set on tribute. The 70 west on Kittow's has been communicated with the bottoms from the 160 and a portion is set on tribute. To drive west on the new lode recently intersected in the 60 cross-cut south by six men at 6 ft. 10 in.; yielding 1½ ton of good quality ore per fathom. There are set on different lodes throughout the mine 55 pitches to 113 men at tributes varying from 13s. 4d. to 14s.

**SOUTH GONDURROW.**—Wm. Rich, W. Williams, H. King, Feb. 27: The lode in the 54 end, west of Marshall's shaft, is opening out wider, and is now worth 7 ft. per fathom. The 66 end west is worth 6 ft. per fathom. The 78 end west is in a poor bar of ground; two stopes in this level are worth 6 ft. and 12 ft. per fathom respectively. The 93 end west yields low quality tinstone; the rise in the back of this level is worth 7 ft. per fathom. The 20, east of engine-shaft, is worth 8 ft. per fathom; a stope behind this end is worth 10 ft. per fathom. The stope in the back of the 20, west of the cross-course, is worth 12 ft. per fathom. The ground is set for working in the 30 end west; the lode, however, is without tin value. The 40 end is worth 8 ft. per fathom. The 50, east of King's shaft, is worth 12 ft. per fathom; the stope in the back is worth 15 ft. per fathom. The 60 east is worth 15 ft. per fathom; the stope in the back, some 20 fms behind the end is worth 10 ft. per fathom. The 70 end east is worth 7 ft. per fathom; the stope in the back is worth 10 ft. per fathom. The winze sinking below the 20, west of the Plantation shaft, is worth 8 ft. per fathom. The 60 end, west of this shaft, is worth 8 ft. per fathom. The ground in the 80 cross-cut north, towards the copper lode, is rather stiffer than it has been. The 80 end, east of King's, is worth 7 ft. per fathom. The lode in the back of the 93, east and west of the winze, is worth 15 ft. per fathom.

**SOUTH DAREN.**—J. Mitchell, Feb. 28: The shaftmen are engaged cutting ground at the 130 preparatory to our commencing to sink. They have also been putting dams in the 130, 120, and 70 to keep the water out of the shaft during stoppages. In the 130 end east we are driving by the side of the lode, and making good progress; we do not want to strip the lode until we get the end clear of debris. In the same level west the lode in the end is looking well, and worth 1½ ton of silver-lead ore per fathom. The stope in this level is worth 2 tons of silver-lead and 10 cwt. of copper ore per fathom. We have just put in a stull in this stope. The three stopes in the 120 east are without particular change, and worth together 4½ tons of silver-lead and 1 ton of copper ore per fathom. No. 2 stope in the 120 west has a fair mixture of copper, and is worth 1½ ton of silver-lead and 1½ ton of copper ore per fathom. No. 1 stope in the 110 east is worth 7 cwt. of silver-lead and 1½ ton of copper ore per fathom. The lode in the 80 cross-cut north, towards the copper lode, is rather stiffer than it has been. The 80 end, east of King's, is worth 7 ft. per fathom. The lode in the back of the 93, east and west of the winze, is worth 15 ft. per fathom.

**SOUTH DEVON.**—W. Hooper, Feb. 28: Martin's shaft has been sunk during the past month 2 fms. 1 ft. 6 in., making a total depth of 10 fms. 2 ft. below the 110, and am pleased to say the lode has proved for this depth from 4 to 5 ft. wide, and worth on an average for the length of the shaft (12 ft.) 23s. per fathom—a very promising-looking lode. We have commenced driving east and west in the 120, where the lode is much the same in size and character as in the shaft. Next week we shall be able to advance the value shall be given you. The adit level, west of old pump-shaft, has been driven during the past month 1 ft. 3 ft.; rest to two men, at 4 ft. per fathom. The lode is 4 to 5 ft. wide, and of an exceedingly promising character, composed of gossan, fluor-spar, and stones of black and yellow copper ore.

**SOUTH FRANCES.**—Chas. Craze, Feb. 25: Pascoe's Shaft: The lode in this shaft is worth 20 ft. per fathom for length (12 ft.). There are some good stones of tin from the north or footwall part of the lode here, but more spar on the south part than when last reported on. The lode is still falling off in the value of the shaft. This, I believe, is only temporary, as the lode still presents a masterly and kindly appearance. The 236 west is worth 20 ft. per fathom. The 226 east is worth 16 ft. per fathom. The 226 west has further improved, as we anticipated it would, and is now worth 40 ft. per fathom. This end is fully 10 fms. short of the cross-course, and we see no reason why it may not maintain its value up to that point, as we had a good lode over this in the level above. This end is being driven by boring machine. We have also put another boring machine to rise in the back of this level, and the lode, against a winze that has been sunk about 9 ft. below the 226. The lode in the 226 is worth 24 ft. per fathom. This, when holed to the winze, will lay open a good piece of stopping ground. The winze in the bottom of the 226 west is of the same value as last reported; worth 35 ft. per fathom for length (12 ft.); No. 1 stope, in the back of this level, is worth 25 ft. per fathom; No. 2 stope is worth 12 ft.; No. 3, 25 ft.; and No. 4 stope worth 12 ft. per fathom. A winze in the bottom of the 226 east is worth 24 ft. per fathom for length (12 ft.). The cross-cut in the 205 east, near Marriott's, is in the lode, but not through it, and, from assays made from the stuff yesterday, we value it at 16 ft. per fathom for 5 ft. width in the lode, and not yet known. We are pushing this on with boring machines. A rise has been put up about 4 fms. in the back of this level further west, where the lode carries some good stones of tin, and is worth 15 ft. per fathom for length (12 ft.). We have taken the boring machine from here for the present, and put it to rise in the back of the 226 west, as above stated. The stope in the back of the 185 east is worth quite as much as when last reported on—14 ft. per fathom. We are cutting in in the north side, about 30 fms. east of the above stope, to test the value of the lode here, which is at present producing some good stones of tin. No. 1 stope, in the back of the 185 west, is worth 15 ft. per fathom, and No. 2 stope is worth 14 ft. per fathom. Marriott's Shaft: The men are doing good labour, and making fair speed in cutting down this shaft. At Daubuz's shaft good speed is being made in driving the 58 cross-cut north-west to cut the lode. The late heavy rains have increased our water at Marriott's, so that the speed of the engine is fully one stroke per minute more than it was when I last reported; but I am pleased to say we are in for a Pascoe's, and our returns of tin at present fully 10 tons per week.

**SOUTH PENSTRUTHAL.**—S. Davey, Feb. 23: Glad to say we have cut into the lode at Walton's, and find it much better than at any other point since starting. I have broken rich stones of copper from it to-day, and expect to find it still better as we advance south. I will send on a box of the ore in a day or two. The 150 west end is looking better for copper than I have before seen it. I think the day is just beginning to dawn. The flat-rod shaft has been sunk this month 2 fms. 3 ft., which is fairly good work considering the hindrances with compressor. I will write again in a day or two.

**S. Davey, Feb. 23: I send per Great Western Railway (this evening's mail) a box of very rich copper ore broken from the lode at the 114—Walton's—which is cut into about 5 ft., and no south wall; indications good for even a better lode south. We have the best lode for copper at this point that has been seen since starting the mine, and I am fully persuaded we are on the top of a large deposit of copper. The lode in the 150 west end is improving. Our prospects are better and brighter than I ever before saw them. My opinion is in no way altered, therefore I still write a great mine in South Penstruthal, and one that will reward the shareholders for their patience.**

**S. Davey, Feb. 28: Setting Report:** A cross-cut to drive south of Walton's engine-shaft by nine men, at 1 ft. per fathom; driven last month, 3 fms. 2 ft. This cross-cut was driven through 15 ft. of highly-mineralised caps before striking the copper-bearing lode, which is 5 ft. wide, composed of quartz, fluor-spar, chlorite, prill, and producing copper of the same rich quality as that sent to the office on Wednesday. The constituents of the lode are all that can be desired for the production of a large deposit of copper ore; and the great change that has taken place in the last 12 fms. sinking clearly indicates that we are on the top of the bunch, copper having taken the place of the mica, which was one of the principal constituents of the lode at the 102, but now comparatively little in it. Flat-rod shaft to sink below the 150 by boring machinery, at 40 ft. per fathom; sunk last month, 2 fms. 3 ft. The 150 to drive west by six men, at 12 ft. per fathom; drove last month, 1 fm. 3 ft. 9 in.. The lode is improving in appearance, and producing more copper.

**TAMAR SILVER-LEAD AND FLUOR-SPAR.**—R. Goldworthy, Feb. 28: Saturday being setting day, and the following bargains were set:—To drive the 37 south by four men, at 7 ft. 10 in. per fathom; the lode is 4 ft. wide, and has a very promising appearance, producing saving work for silver-lead and 3 tons of fluor-spar per fathom; this is 10 fms. north of the winze sinking in bottom of the 27 from new shaft, which is being forced on by a full pair of men at 6 ft. per fathom; the lode is 2 ft. 6 in. wide, producing 4 cwt. of silver-lead, 2 tons of fluor-spar per fathom, and promising for further improvement. A stope in back of this level by four men, at 3 ft. per fathom; the lode is 2 ft. wide, producing 3 cwt. of silver-lead and 1 ton 10 cwt. of fluor-spar per fm. No. 2 stope is set to two men for one month on tribute, at 14s. in 11.

**TANKERVILLE GREAT CONSOL.**—Arthur Waters and Son, Feb. 28: Box Mine: We have 66 men underground here exploring the different lodes in the various levels on tribute, the 22 pitches together being worth 5 to 6 tons of lead ore, and 9 to 10 tons of blende per fathom, the latter being worth 40 ft. per ton. We expect by the consent of the lessor to enter on a mode of working

here which will enable us to very much reduce the monthly expenditure, beginning from next Friday week. We have this month sold and delivered 30 tons lead ore and 40 tons of blende, and have to-day sampled 20 tons of lead and 40 tons blende for sale next week. The lead ore will be in trucks on day of sale. —Pennerley, Warm Water Lode: The stope in the back of the 120 west is worth 2 tons lead ore per fathom. The new shaft below 93 is down about 8 fms.; lode 8 ft. wide, worth 2 tons per fm. The 93 east is driven 7½ fms.; lode 3 ft. wide, worth 25 cwt. lead ore per fathom, and improving. Winze in 93, west of shaft, down about 2 fms., is worth 3 tons per fm. Stope in back of this level west is worth 2 tons per fathom. The winze in 96 going down just in front of the 93 east—now 4 fms. 3 ft. 6 in. deep—is worth 20 cwt. per fm. The stope above 88 east is worth 30 cwt. per fathom. In Pottery's Pit the water is going down slowly, being now 2 ft. below the 105. Samples of 50 tons lead ore go by this port. —Tankerville Mine: The 244 east and west of Watson's engine-shaft is opening out a strong sparry, grey, lode, there being a cavity in the east end and signs of our near approach to a similar opening or vugh in the west end. We expect an improvement in each direction shortly. The winze in the 232 going down in the cavity is 5½ fms. deep, and we are pushing it as fast as possible to get to the 244 that stopping ground may be available. We can speak from bottom of the winze through the vugh to the men in the bottom level. The 232, east of shaft, shows a lode split up into divisions, composed of calc-spar and lead ore. The stope in 230 east is worth 2 tons per fathom. No. 2 stope in same level east is worth 25 cwt. per fm. Pitch in bottom of 230 west is worth fully 30 cwt. per fm. Stope in 220, east of north lode, is worth 35 cwt. lead ore per fathom. The two pitches in 192, west on said lode, are worth together 2½ tons of lead ore and 25 cwt. of blende per fm. Pitch in roof of 35 east is worth 15 cwt. of lead ore per fathom. Samples of 30 tons of lead ore have been taken here to-day.

**TREGONTHES AND OLD POLGOOTH CONSOLS.**—Silas Pascoe, Feb. 28: The new shaft is sunk 58 fms. The 36 has been driven about 24 fms. on course of the lode; this lode is from 1 to 2 ft. wide, composed of peach, spar, tin, and blende, but not in value. At the 46 we have driven cross-cut, and on course of the lode some 10 fms.; lode not at present in value. At the 56 we have driven cross-cut on the course of the lode about 45 fms. We expect to meet a great improvement a few fathoms in advance of the present end. —Deep Adit Old Mine: We are making the necessary arrangement here for stopping, hoping ere long we shall have room for several pairs of tributaries. Surface stopes Nos. 12 and 13 are working at 10s. in the 11, and looking much as usual. No. 1 lode level on the flat lode has been driven 24 fms.; now working on tribute at 10s. in the 11. No. 2 adit level on flat lode has been driven 43 fms.; lode from 2 to 3 ft. wide, working on tribute at 10s. in the 11. No. 3 adit level on flat lode has been driven 41 fms.; lode full 4 ft. wide, working on tribute at 10s. in the 11. Stopes are being worked on the back of this level at 10s. in the 11. Perhaps it is not out of place to mention here that this level has been driven with all possible speed in order to increase hands stopping. I am glad that this has been obtained, and to-day we have let a stope to other tributaries, at 10s. in the 11. This and as we further advance will add to our returns. —Mulva: The south lode has been opened upon, 75 fms. varying from 2 to 4 ft. wide, yielding good stones of tin; a well defined lode, the north lode has been driven upon 15 fms., varying from 2½ to 3½ ft. wide, carrying tin throughout, from the bottom of this level we are breaking rocks of tinstone, worth 3 qrs. of tin to 1 ton of stuff. It is the most promising thing in depth I have ever seen. Moreover, this lode is underlying south, and the south lode is underlying north. In all probability they will intersect each other at about 50 fms. in depth. The issue of an intersection of two such magnificent lodes no miner can estimate. All the machinery, stamps, &c., is working well.

**TREVAUNCOCH UNITED.**—Wm. Vivian, Feb. 28: We have intersected the south part of the lode in the cross-cut driving south at the 55 fm. level, lode producing good stones of tin. We have not yet cut through the lode. We have also commenced to drive east on the copper lode. We sold yesterday 5 tons 6 cwt. tin, at 50s. per ton. We shall sell another parcel in a fortnight.

**VAN.**—M. H. Williams, Feb. 27: Monthly Report: At the 120 west we are now preparing for crossing under Edward's shaft. I am glad to report that we have a little ore in the end this week, of no commercial value, only as an indication for good, and proving that the lode does improve in depth, as we saw nothing so promising in either of the levels above the corresponding point. I am also glad to be able to report the continuance of the favourable indications in the 155 fm. winze below the 120; the lode in the hanging of which is worth 30 cwt. of lead ore per cubic fathom. I have reset the sinking of the winze to six men the month at 12 ft. per fathom. The 105 west is still driving in the soft by two men. There is no change worthy of remark in any of the stopes since my report. —Old Mine: Prepared for the annual meeting held last week, and published in the *Mining Journal* of Saturday last. —Surface: All surface work is progressing regularly. We have overhauled the piston of our pumping-engine, and made other improvements, which will effect a considerable saving in working it. Our monthly sale takes place to-morrow upon 150 tons of lead and 100 tons of blende.

**WEARDALE.**—James Bleknirk, Feb. 23: Killhope—Killhope Head Vein: The coal sill now taken up at forebreast is 12 ft. high, and yielding from 8 cwt. to 12 cwt. of ore per fathom. The forebreast will be set to drive by four men tributing. When this forebreast is driven about 13 fathoms we expect by observing the time the lode will be in the top of the level, and the principle of the vein (a cross vein having confined the lode) is proved the exploration of the Great Limestone in adit level may then be prosecuted with more certainty. —Trent Level West: We have tapped a considerable quantity of water this week, an indication that there is open ground betwixt the forebreast and the old stopes below Whimsey level. The rise in the top still continues in shale. The ore workings, or stopes, yielding the usual quantities of ore in Killhope Head vein and in the Old Mine Vein: There is no change to note in the strength or composition of the vein in the two main forebreasts. The principal vein is a shale vein, the rider with tracings of ore, which is all we could expect in a shale vein. The stope on the back of the east level maintains its value—3 tons of ore per fm.—although varying in the different posts or layers of the sill in richness. Elliott's stope west from rise has improved a little in east end of length. The west part continues poor, worth from 30 to 40 cwt. per fathom. Whimsey Bing is progressing favourably. —Burtree Pasture: There is no change in Donaldson's level, the end continues extremely hard, vein 4 to 5 ft. wide, composed of fluor-spar, quartz, and rider, worth 14 cwt. of ore per fathom; the progress is slow. There is no change in the tribute pitch above this level. In the ore workings above Millburn's level there is a little improvement in some of the pitches; but not much change to note. —Greenlaws: In air drift above Watson's level the vein is 3 ft. wide, composed of spar, rider, and mundle, and traces of ore; but nothing to save. The drift east is poorer for ore, the vein is a little nipped, worth 12 cwt. of ore per fathom. We hope and expect to see an improvement again soon. In tribute from quarry level to meet the above drift we are in a weak lead, I think most of the vein is in the north side. —Grosvenor compact and sandy vein 6 ft. to 8 ft. rise from Quarry level in slaty hazel we have a strong kindly vein 6 ft. wide, chiefly favourable fluor-spar, worth 30 cwt. of ore per fathom, and appearance very promising. The rise in Dent's level still in plate; we hope to meet with payable ore as soon as slaty hazel is reached. In Quarry level we have a slight improvement upon the whole, varying from 16 to 35 cwt. per fm. The middle level is rather poorer than last week, varying from 12 to 35 cwt. per fathom. —Grove Bake: The men are making fair progress with enlarging Kidd's dump. On Greenlaw's level we will commence sinking upon shortly. In middle drift east from Hill's rise we have a little ore to save, but not to value. I hope and think we shall find better ore to the side when we commence stopping. The middle drift east from Lonsdale rise turnwork stopped; six men working on tribute at 30s. per bing. The cross-cut north from the Bake level is hard and slow to work; but we still think there is a vein near. There is no change to note since last week in the general appearance of the ore workings or the tribute pitches.

**WEST CARADON.**—N. Richards, Feb. 27: Believing that Jope's lode was missed in the shallow ground by former workers, we put out a cross-cut lode in the 17 fm. level, and intersected the lode, which is over 2 ft. wide, but at this level is unproductive. We shall now look for it at one or two of the other levels, with the view of testing its value at a deeper point. The rise and stopes in back of the adit level, on Gilpin's lode, will yield in the aggregate 3½ tons of copper ore per fm.

**WEST CREBOR.**—John Andrews, Feb. 27: We completed the fixing of the 8-in. lift at the 80 and put it to work on Thursday last since which the shaftmen have been engaged in raising the lode, and the latter result from the 82 to the 80, which will be completed to-night or early to-morrow, when the sinking of the shaft below the 80 will be immediately resumed. The lode in the 80 west has slightly improved during the past week, and is now 2½ ft. wide, yielding good stones of ore.

**WEST GUDOLPHIN.**—F. Hodge, Francis Hodge, Feb. 26: Considering the hardness of the ground in Hodge's engine-shaft fair progress is being made. The lode in the 70 east on Bellingham's is producing fine stones of tin. The lode in the 50 west on Pink's is producing 3 cwt. of tin, and producing very fair tinny tribute ground. Two stopes in the back of the 50 on Pink's is turning out much as usual. No other change.

**WEST GONAMENA.**—N. Richards, Feb. 27: Gilpin's lode, in the back of the midway level, east of main cross-course, will yield close upon 1 ton of good copper ore per fathom.

**WEST KITTY.**—Wm. Vivian, Feb. 28: In the 80 driving east the lode is worth 80 ft. per fathom. In the 72 driving east the lode is worth 150 ft. per fathom. In the 60 driving east the lode is worth 150 ft. per fathom. In the 50 driving east the lode is worth 150 ft. per fathom. In the 40 driving east the lode is worth 150 ft. per fathom. In the 30 driving east the lode is worth 150 ft. per fathom. In the 20 driving east the lode is worth 150 ft. per fathom. In the 10 driving east the lode is worth 150 ft. per fathom. In the 0 driving east the lode is worth 150 ft. per fathom. No change to notice in the other points of operation since last report.

**WEST WHEAL PEEVOR.**—W. T. White, Feb. 27: We have no particular change to report. Our pay and setting is on Saturday, and next week a full report will be given.

**WHEAL BENNY.**—T. Cocking, Feb. 27: During four weeks ending 16th inst. we have driven and stoped east of engine-shaft 14 fms. 2 ft. The part of lode carried varied from 4 to 6 ft. wide, and has still producing good work for tin. Our round biddle is now completed and at work, which I am pleased to state answers well, and no time shall be lost in getting a good batch of tin ready for the market. All the machinery continues to work very satisfactorily.

**WHEAL CASTLE.**—J. Boyns, Feb. 19: We have pumped the water out of the 70, and sunk the back of the lode. At this point the lode is rich in mundle, with a little copper mixed with it. In a few days we hope to clear the level so as to dial it, and examine the lode in the end. The skip-rod is fixed to the 70. We are clearing the debris out of the shaft, and have forked the water 4 fms. under the 70. As we have to clear up this piece of shaft from the 70 to the bottom level with buckets it may take two or three weeks more to accomplish it. In the cross-cut at the 25 south, towards Forman's lode, the rock is not quite so hard. There are branches of quartz and mundle mixed with it; these are indications of being near the lode.

**WHEAL CASTLE.**—Wm. Vivian, Feb. 23: The copper still continues good, and operations at the mine are going on satisfactorily.

**WHEAL CREBOR.**—H. Phillips, P. D. Holman, Feb. 28: There is no change in the new shaft, sinking below the 144, since reported. The lode in the 144, driving east, is 3 ft. wide, containing spar, opal, and arsenical mundle. The lode in the 144, driving west of new shaft, will yield 15 tons of ore and 2 tons of mundle per fathom; the stope in the back of this level, west of shaft, will yield 5 tons of ore and 4 tons of mundle per fathom. The lode in the winze sinking below the 132, east of new shaft, will yield 8 tons of good ore per fm. At this point we are sinking by the side of the lode, which will enable us to effect a communication with the 144, driving east, at an early period, and lay open a good stopping ground. The lode in the 132, driving east of new shaft, will yield 1 ton of ore and mundle per fathom. The lode in the stope in the back of this

level will yield 8 tons of ore and 3 tons of mundle per fathom. The part of the lode carried in the bottom of the 120, east of new shaft, will yield 8 tons of ore and 3 tons of mundle per fathom. The stope in the back of the 48, east of new shaft, will yield 4 tons of ore and 4 tons of mundle per fathom. All other points are without change.

**WHEAL UNY.**—W. Hambley, W. Prophet, James White, Feb. 28: There is no change in any of the points in operation since last week's report, except that of putting three lads with Hind's shaftmen for the purpose of increasing the speed of sinking. The several tribute pitches and stopes maintain their value, and the other work throughout the mine is progressing satisfactorily.

#### SOUTH DOLCOATH MINE.

Considerable interest attaches to proceedings connected with the winding-up of South Dolcoath Mine now going on in the Stannaries Court, at Truro. At the hearing before the Vice-Warden, Mr. Herbert Fisher, on Feb. 23, Mr. F. H. Cock made an application on behalf of John Bryant, Truro, to place the names of Capt. James Nicholls, Camborne, and Mr. John Tonkin, Tacklingmill, upon the list of contributories in respect of the South Dolcoath Mine for 88 shares each.—Mr. G. H. Chilcott appeared for Messrs. Nicholls and Tonkin, and raised an objection to the application on the ground that Mr. Bryant allowed 10 months to elapse from the time that notice was served upon him for the payment of 75s. due on these shares before taking any proceedings. It was, however, explained that Mr. Bryant was suffering from the effects of a seizure, and his Honour overruled the objection. Mr. Chilcott proceeded first with the case of Capt. Nicholls. He said the only agreement between Capt. Nicholls and Mr. Bryant was merely one to indemnify the latter against one-third of the loss which he might sustain under the agreement to form the syndicate, under which he was liable to contribute 100s. It was not an agreement to take shares, but simply to form a syndicate for the purchase of a mine, the lease, and the formation of a company. On the day the agreement was entered into they succeeded in forming a company, and consequently all liability under the syndicate agreement ceased. Capt. Nicholls was called, and, cross-examined by Mr. Cock, said he first became connected with South Dolcoath in October, 1881. He attended the first meeting in company with Messrs. Tonkin and Bryant on Oct. 13, 1881. At that meeting he was appointed manager, and Tonkin and Bryant engineers. He did not know anything at the time about the syndicate agreement—to that he swore—but subsequently learned that an agreement had been entered into. He took no shares in the mine for himself, but took several for his wife, and these were transferred to him by Mr. Lambert, the secretary. He did not enter into any agreement with Tonkin and Bryant before the syndicate was formed, and never at any time entered into a written agreement with either of them. He remembered meeting Bryant and Tonkin at the Royal Hotel in the beginning of January, 1882, and on that occasion he signed a cheque in Bryant's favour for 33s. 6d., but no agreement. Mr. John Beale, of Truro, did not witness the signatures of Tonkin, Bryant, and himself to three copies of a document, and if Mr. Beale made a statement to that effect it would be untrue.

In refutation of this Mr. Cock read the copy of an agreement which was said to have been signed at the Royal Hotel at this time, and by which, amongst other things, the parties thereto—Tonkin, Nicholls, and Bryant—agreed that the 10th part of the interest in the mine which Bryant held under the syndicate agreement should be equally divided amongst them, each party to be responsible for any loss on his own interest.—Capt. Nicholls swore that he had never seen this agreement before. The 33s. 6d. which he paid Bryant represented a third of the 100s. for which Bryant was liable under the syndicate agreement. He advanced this to Bryant as a loan in order to keep the mine going, inasmuch as his wife and several of his friends were interested in it. He again met Tonkin and Bryant at the Royal Hotel, Truro, on Sept. 6, 1882, but no transfer of shares took place.—By Mr. Cock: No transfer of 88 shares was made between me and Bryant, and witnessed by Tonkin, and no transfers of 88 shares was made out between Tonkin and Bryant, and witnessed by me. At that interview no document was burnt.—In answer to Mr. Chilcott, Captain Nicholls said the 33s. 6d. which he paid to Bryant was merely a loan to assist him to pay the amount for which he was liable.—Mr. Cock asked that Tonkin's evidence might be taken, but to this Mr. Chilcott objected, as he wished to complete Nicholls's case first.—At his Honour's request, however, Tonkin went into the box as a witness in Nicholls's case, and corroborated all that he had said with regard to the agreement and the interviews at the Royal Hotel, and said that the allegations in Bryant's evidence respecting these interviews were untrue.—Mr. John Beale, cross-examiner, Truro, was called, and swore that in the early part of 1882 he was at the Royal Hotel, Truro, and witnessed the signatures of Tonkin, Nicholls, and Bryant to three documents, but what the contents of those documents were he could not say.—John Bryant was called, and said he attended the first meeting in connection with South Dolcoath in London, in company with Tonkin and Bryant. He met them once previous to the meeting, with regard to the mine and on the day of the meeting they arranged between themselves that they would take a 10th part of the mine, but that his (Bryant's) name should alone appear in the syndicate in respect of that interest: 100s. was subscribed by the syndicate, consequently their interest amounted to 100s. and that amount was represented by 88 shares. In January, 1882, he met Tonkin and Nicholls at the Royal Hotel, Truro, by appointment, and they there signed three copies of the agreement referred to in the presence of Mr. Beale. Nicholls paid him 33s. 6d. as his third part of the 100s., and Tonkin remitted his portion about a month afterwards. He again met them at the Royal Hotel on Sept. 6, 1882, and 88 shares were transferred from him to Tonkin, and 88 to Nicholls. At the request of Nicholls he brought the original copy of the agreement to the hotel, and after the shares had been transferred Nicholls and Tonkin said the agreement was of no use, and he (Bryant), believing the shares would have been transferred in due course, allowed them to destroy it. Tonkin tore it up, and Nicholls set fire to the shreds. He subsequently discovered that the transfers had not been registered, and had been served with notice to pay calls on the whole of these shares.

The case came on again on Tuesday, but Mr. Cock stated that Mr. Lambert was unable to be present.—His Honour said it would be necessary for Mr. Cock to prove that Bryant had ceased to be a shareholder. If he could do that, he would succeed with the case; but if he could not do that he would fail, however strong might be the merits of the case, and his client could only look for his remedy by action. If he were right as to facts there would be but little difficulty with reference to action.—His Honour threw out these suggestions in order to show Mr. Cock that unless the evidence of Mr. Lambert would afford this proof it would be useless to go to the expense of getting Mr. Lambert down from London.—Mr. Cock recognised the serious difficulty, but his impression was that there were circumstances in this case which might lead him to think that the general rule with regard to such cases—His Honour allowed Mr. Cock three weeks to consider the case, and stated that if he should decide to proceed with the case, and would communicate with him, he would fix a date for the conclusion of the hearing, as he did not wish to adjourn it to the next sitting.—Mr. Cock consented.

**OLD SHEPHERDS.**—Mr. Charles Bawden, St. Day, Scorrier (Feb. 28) writes:—It is with more than ordinary interest that I again refer to the property. In the *Journal* of the 16th inst. I remarked—"That profits of mining are not limited simply to the dividends from products, but afford frequent and unexampled instances of greatly accumulated gains from rapid advances in market value of shares, and that something similar had set in with regard to Old Shepherds, seeing the shares are rapidly advancing in price, stimulated likely by the working of the north and western portions of the sett, combined with the near approach to the bottom of the mine, where rich lodes of silver-lead are known to exist." In reply to the numerous correspondence brought me by these remarks, I can only say a rise of 300 per cent. on the price of Old Shepherds shares within the last month to a great extent verifies that prediction, such being founded on the tangible ground of value received, the sale of one section alone being sufficient to distribute a dividend of from 3s. to 5s. per share, besides carrying 10,000s. to the credit of the company for further working capital. The sale of this portion of the property will in no way detract from the value of Old Shepherds proper, being situated at a distance rendering it impracticable to command it with the machinery now on the mine; indeed, the working of it must, under any circumstances, be done by another plant, thus utilising a valuable property which might otherwise have remained in embryo. This, together with the near approach to the bottom of the mine, where there are known to be rich courses of silver-lead in store, places Old Shepherds in a position, financially and otherwise, to be envied by the greatest and best mines of Cornwall.

From Mr. JOHN B. REYNOLDS:—The markets have been very inactive all the week, with but little business going forward in any quarter. Prices have not materially changed, and there seems to be a quiet but steady demand for low-priced shares. The reason why Wheal Coates shares are so low continues to be asked, but the best method of improving them is for those interested to come in and buy largely. It is true that the shares are depressed at 5s. to 5s. each, but it is equally true that whilst little or nothing can be lost by a purchase a considerable profit might possibly be made. Those who argue in favour of buying shares of this description at low rates have, it must be confessed, experience in their favour. There are, of course, exceptions to every rule, yet the rule holds good nevertheless. It must not be forgotten that no call was required at the last meeting, that the credit balance amounted to over 850s., and that the returns of copper will be on the increase, whilst one or two other points of importance have to come off in the mine.

West Kittys have remained remarkably steady, and show no indications of declining in price. The same may be said of Pulberron, and, perhaps, with greater emphasis as an advance here is considered a certainty. It is acknowledged in well-informed circles that this mine is likely to turn out one of the best properties in Cornwall. East Pools have been in favour, and the liveliest satisfaction is freely expressed at the result of the meeting of shareholders recently held. That Dolcoath shares keep so steady is a significant indication of the probable course of the tin market. In fact, this mine is the Consols of the market for shares in tin. It is well to remember that those gentlemen who are invariably right in their conclusions predict an important rise in the price of tin, and should this be the case there will, perhaps, be a demand for good mining shares such as has never been known.



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## The Mining Market: Prices of Metals, Ores, &amp;c.

METAL MARKET—LONDON, FEB. 29, 1884.

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\* At the works, 1s. to 1s. 6d. per box less for ordinary; 10s. per ton less for Canada; 12s. 6d. per box more than 100 quoted above, and add 6s. for each X. Terne-plates 2s. per box below tin-plates of similar brands.

REMARKS.—To-day we are brought to the close of the winter season, a time when business in metals is invariably dull, but which has proved exceptionally stagnant this year, whilst prices nearly all round have during that time greatly depreciated in value. Scotch pigs have fallen fully 2s. per ton, and other descriptions of iron have eased in buyers' favour. Copper and tin have both been reduced by about 4s., but do not attract buyers at the reduced rates. Spelter is about 10s. lower; steel rails can be bought fully 5s. cheaper; tin-plates are offering at 1s. per box quicker, owing to the rise that has just been effected, has improved in value by 2s. 6d. to 5s. per bottle. The quotations for lead remain fairly steady, but are nevertheless slightly easier, particularly Spanish, which shows a reduction of about 2s. 6d. per ton. At the commencement of the winter season we pointed out the great uncertainty of the future, and the depression that has continued throughout has been more than usually marked. In spite of the attempt made at the close of the autumn by certain operators to enhance prices, it was almost universally anticipated that their efforts would be frustrated, and prove of no avail; but there were probably few who looked forward to so general and complete a fall. Trade throughout has been wretchedly bad, and everything appears to have gone against the markets. Production has in many instances been maintained in excess of requirements; financial difficulties have existed, especially at the early part of the season; there has been a hardening tendency in finance, and an actual rise has been made in the Bank rate.

The Indian Exchange has not tended in favour of business, and political disasters in Egypt have from time to time more than dulled the tone, whilst the adverse from the colonial and continental markets have been most unfavourable. The characteristics of the last week have been similar to those of the whole season, and, notwithstanding some feeble attempts to raise the markets from their fallen state, and to restore the feeling from its despondency, yet the operators who have made this move do it with a disheartened feeling, and with little or no hope of success. There is no spirit, no animation, no activity, no real vigour thrown into their action, for they, doubtless, one and all, feel that, although temporary success may be their portion, yet there is no one to follow. Trade is too bad—there is nothing which has the slightest appearance of substantiality, no backbone whatever to business. The declining days of winter are generally cheered by extra hopefulness and increased sanguineness that the spring will be attended with beneficial results, and that the dreary season of winter having expired trade will revive; but this year there is no room for sanguineness, and the prospects are still very gloomy. The reduced prices evidence a great curtailment in the profits of all manufacturers and producers, and, in many instances, the price brought to that crisis in which it is necessary for them to decide whether it is more advantageous to close their mills and bring their plant to a standstill, or to continue their make at a positive loss, in the hope of better times. This latter policy has been their course for a long time past, and economy in production has had to be so rigidly enforced that a great proportion of the employed have had to accept reduced wages, and many have been turned off altogether, thus causing a vast amount of distress.

COPPER.—After closing last Friday with a very dull and inanimate tone, and with the acceptance of reduced rates, this market opened on Saturday with a less depressed feeling, and prices somewhat recovered from their low figure of the previous day, and this little extra improvement was continued until Wednesday, when up to 55s. 15s. was once more realised for cash parcels of Chili bars. This remained the official quotation yesterday, but no buyers could be found thereat, and the market again assumed a very dull and inanimate appearance. Buyers will not follow up a rise; they evidently have no confidence in the future, and sales for forward prompts are most difficult to effect. This may seem strange in the face of current low rates, but it only requires a very small investigation into the actual state of the market to find ample cause for the feeling of despondency. In the first place, there is the stagnancy in general trade. No trade is good or in a satisfactory condition, and under those circumstances it is but natural that a heavy market like copper should drag. But irrespective of that the uncertainty of future supplies is sufficient to create uneasiness, if not anxiety, for the latest returns fully indicate their maintenance, and in consequence also point to reduce values. Then smelters are thought to be badly off for orders, and they are not unwilling to make concessions in order to do business. Old contracts are being rapidly worked off, and fresh ones do not come in to succeed them. Indian indentors do not increase their limits; but, on the contrary, seem only inclined to do business at further reduced rates. In fact, the more the state of the market at the present time is considered the more unsatisfactory does it seem to be, but we have enumerated enough features to show that the present dormancy arises from adverse circumstances in the actual trade, and we cannot agree with those who believe that the present low rates will soon stimulate the demand, and thus cause an immediate revival, but would rather attribute the current low rates to the present bad state of the trade, and until the trade revives there is not likely to be any permanent improvement in prices.

IRON.—This market remains very inanimate, and prices continue to ease in favour of buyers, though no further heavy concessions have been made by sellers. Recently the depreciation in the value

of Scotch pig-iron has in some circles been attributed to reduced quality of certain Scotch g.m.b. iron. In these columns we have not referred to the matter, as the attacks on the quality of these brands were not sufficiently authoritative; but the statement may be set at rest by the following report from the Committee of the Scotch Pig-Iron Trade Association, in which they state that they have hitherto declined to answer the anonymous articles and letters which have appeared in the public journals attacking the quality of certain Scotch g.m.b. irons; but the Association has been more desirous to ascertain, if possible, the origin of these charges, which have certainly not come from either those who use the iron or from those who buy and sell it. In this it has been unsuccessful. As representing the pig-iron merchants of Glasgow who deal largely in the brands referred to, this committee begs to state that there never have been fewer complaints than of late regarding the quality of these irons, and it is convinced that these recent charges of a depreciation in quality emanate from interested parties and are unfounded in fact. It is intimated that cinder iron has only lately been introduced into the manufacture of g.m.b., but all concerned with the trade are aware that it has been in use for the last 20 years, not only in Scotland, but also in Cleveland, and that during that period changes have been introduced all round in the composition of Scotch pig-iron, as is evidenced by the increased importations of foreign ores.

It has never been the custom of merchants and brokers to concern themselves regarding the process of manufacture, but only with the quality of the pig-iron produced. The iron merchants and brokers, now incorporated as "The Scotch Pig-Iron Trade Association," have, in times past, decided what irons shall be accepted in the trade as g.m.b., and this committee is satisfied that the iron now in store, whether received lately or years ago, is equal in quality to the iron delivered direct from the makers, at the same time to shippers and consumers, and regarding which no complaints have been made, and the storekeepers—Messrs. Connal and Co.—make it their business to take stringent precautions against inferior qualities of iron being admitted into their yards. Neither Scotch nor Cleveland iron is sold by analysis. The manner of determining the quality and of assaying the iron into its various numbers has been to break the pig, and to judge it by the appearance of the fracture. If it be true, if this committee is driven to infer, that the present attacks upon the quality and composition of certain g.m.b. irons originate with a section of the ironmasters, who have now appointed themselves into the truthfulness of their own allegations against the quality of the produce of their competitors in trade, the result of their investigations will not carry much weight. It has at all times been open to operators and investors in iron warrants if they wish a particular brand to stipulate for it; but such stipulation must be made before purchasing, otherwise any of those brands recognised by this association as g.m.b. must be accepted in fulfilment of the contract. In the opinion of this committee, none of the brands now in store have forfeited the position they have for so long held as g.m.b.

We need add nothing to this interesting and conclusive statement. It will, doubtless, be sufficient to dispel any anxiety that may have arisen from the unauthoritative reports that have been so industriously circulated. We would only draw our readers' special attention to the stringent precautions taken by the storekeepers against admitting inferior qualities into their yards, and further that the iron made with that complained of, and already gone into consumption, has given every satisfaction. In another circular the Association writes that the aggregate production of the only three brands of which any part went into store last year was 169,000 tons, of which 131,000 tons were consumed or shipped, 31,000 tons were shipped, and the balance accumulated in makers' hands. The Association also deny that at any of the works have two qualities of iron been made, and further state that the iron stored is identical in quality with that of the works, and that the whole of the above 31,000 tons has been received by the consumers in Glasgow and a road as good merchantable brands. The Glasgow warrant market opened this week with a quiet tone, and on Monday business was done from 42s. 4d. down to 42s., while on Tuesday there was a steadier tone, the price being 42s. 1 1/2d. On Wednesday the market recovered to 42s. 4 1/2d., and yesterday the market was steady and a moderate business done at 42s. 3d. to 42s. 4d., and the closing figure this afternoon was 42s. 3d. The shipments last week were 10,084 tons, against 11,614 tons for the same week of last year, being a decrease of 1530 tons, and which makes the total shipments for the whole of this year 74,857 tons, against 84,335 tons for the same week of last year, and 79,357 tons for the similar period of 1882. There are now 97 furnaces in blast, and the public stock has been further increased to 592,427 tons.

The imports of Middlesbrough pig-iron into Grangemouth last week were 4740 tons, against 7585 tons for the same week of last year, being a decrease of 2845 tons, and which leaves a total increase for the whole of this year, compared with last of 5705 tons. The Middlesbrough market has remained inactive, but prices have been fairly strong, notwithstanding the further considerable accumulation of stocks. The shipments last week were about 12,400 tons, and the public stock stands at 61,285 tons. The price for No. 3 is 35s. 9d. to 37s., and for No. 4 35s. In manufactured there is next to nothing doing, and some of the works are standing idle for want of specifications. The price of ship plates is 5s. to 5s. 2s. 6d.; of common bars, 5s. 2s. 6d.; angles, 4s. 15s. to 4s. 17s. 6d.; and on the contrary, the "beams" a bare are of 5s. 6d. per ton. There is not much change to report from Wolverhampton, but some small purchases have been made without alteration in prices. Sheets range from 7s. 10s. to 9s.; list bars at 7s. to 7s. 10s.; common bars at 6s. to 6s. 10s.; hoops from 6s. 10s. to 8s.; and native part mine pigs at 4s. to 4s. 6d. per ton. The trade at Birmingham is all but stagnant, and buyers in no cases will pay more than the lowest current rates. Competition both at home and abroad places the Birmingham manufacturers in a very unsatisfactory position, but in pig-iron there is a slightly better demand, and prices are tolerably firm.

TIN.—This market keeps fairly steady, but there is not much business doing. In fact, the market is rather neglected, neither operators for the rise or fall caring much about increasing their engagements. There is always a certain amount of activity in this market, whether prices are advancing or receding, and, therefore, when we say that the market is neglected we speak comparatively, and certainly compared with ordinary times the state of the market this week may be said to have remained quiet. One day there has been a stiffening tendency, another weakness has been the principal characteristic, but altogether the fluctuations have been so slight, and the market so quiet, that it is hardly worth the trouble of comment, considering the fluctuations in this market are, as a rule, so wide and variable. The statistics for the month will probably be out to-morrow, or early next week, and according as they are viewed favourably or otherwise so prices may tend during the ensuing week; but certain it is that the course of the market for the past few days is not indicative of any particular course in the immediate future. Operators will not follow up the market because, for the moment, they have lost faith in anything permanently improving in value, while, on the contrary, the "beams" a bare are of 5s. 6d. per ton. There is not much lower than what they have for the most part during the past year or so. In spite of this reduction, however, the value of this metal still seems fairly high compared with other metals, and holders may be congratulated in their ability to uphold the market even at current figures for so long, when nearly everything else has not only depreciated to a large extent, but are also still further tending downwards. To-day the market has been slightly stronger, and at the close is at its best point.

SPELTER is quiet at 14s. 7s. 6d. to 14s. 12s. 6d. per ton for ordinaries.

LEAD.—Business in Spanish has been done at 11s. 8s. 9d., and English is quoted at 11s. 15s. to 12s. per ton.

STEEL.—A rather better business has been done in rails, but there is no improvement in prices.

TIN-PLATES.—There is a limited enquiry for both cokes and charcoal, but the current low rates do not stimulate the demand to any appreciable extent.

QUICKSILVER.—The good demand continues,



in another column, that the list of applications will close on Saturday next.

Devon Great Consols,  $\frac{3}{4}$  to  $\frac{1}{2}$ ; the 205 east has improved to 3 tons of mineral per fathom. The lode in the 112 east and west is worth 2 tons per fathom. All other points same as reported last week.

Devon Great United,  $\frac{3}{4}$  to  $\frac{1}{2}$ ; the 120 west has been driven 7 fms. worth on an average 4 tons of ore per fathom; and the 120 east driving towards Devon Consols is gradually improving, and a good course of ore is expected in this direction.

Drakewalls shares have been dealt in at 6s. 6d. to 7s. during the past week. Better progress is being made at the various points of operation.

Eaton, 2 to  $\frac{3}{4}$ ; the manager reports that, owing to the finer weather rapid progress has been made with the surface works. The draining of Clayton Mine to the 30 is nearly completed, and the new pump and plunger-lift are being fixed. Another cross-course has been intersected in Vivian's vein containing both copper and lead, and there has also been a similar change in the Ider Alley vein, which is looking very promising for large deposits of copper. The manager states that the Clayton vein "increases much in strength as we go down, and has evidently produced large deposits of copper at and about the 30."

Kit Hill,  $\frac{3}{4}$  to  $\frac{1}{2}$ ; the Great Tunnel level has been driven nearly 245 fms.—8 fms. during the past month. The lode in the north engine-shaft is 6 ft. wide, and producing saving work for tin ore.

South Devon United,  $\frac{3}{4}$  to  $\frac{1}{2}$ ; Martin's shaft has been sunk 10 fms. below the 110 fm. level, the lode being 4 to 5 feet wide, and has averaged for this sinking about 237. per fathom.

South Wheal Frances have been in better demand at  $\frac{5}{8}$  to  $\frac{1}{2}$ ; a good lode of tin has been cut into at the 226 west, and gradually improving in value, worth from assay made from samples 407. to 507. per fathom. This is a very important point, seeing that the cross-course is only some 12 fms. west of the end, and should the lode maintains its value up to that point it will be an important discovery, and add considerably to the value of the mine.

West Seton, 5 to 6; the lode in the bottom of the shaft maintains its former value, and is worth about 607. per fathom. Great confidence is felt in the manager, Capt. Rutter, by those who are expecting by his mode of management that a good profit may be shown at the next meeting of shareholders.

California Gold,  $\frac{3}{4}$  to  $\frac{1}{2}$ ; the mill run this week of 495 tons, yielded 12007. The 1500 level west is still turning out 15 tons of ore per fathom. The report also states that the shaft is being sunk to 1600 ft.

Colorado United,  $\frac{3}{4}$  to  $\frac{1}{2}$ ; this mine continues to produce a large quantity of ore, the shipments for the week, as shown from the report, being 466 sacks. The 13 level has been driven 51  $\frac{1}{2}$  ft. since the last report; it has now been extended nearly 600 ft. east of the silver ore shaft, being in ore almost the whole distance. In none of the upper levels, writes a correspondent, has the ore continued for so long; it is, therefore, now perfectly clear that the ore body increases in depth. In the western ground, on the lode called the Blaine, which appears, from Mr. Rickard's plans, to be a continuation of the main Terrible lode, ore has been discovered in the drift, which is heading in a direct line towards the Terrible shaft. Whether the course of ore exists the whole of the intervening distance between these two points it is impossible to say, as the distance is more than 1500 ft.; but the lode has been traced on surface for this distance, and the probabilities are strongly in favour of this being mineral-bearing, as we have now, ore at both ends. If such turns out to be the case, the company have a future almost without parallel. It may not be generally known that the raising of ore from this mine has been so profitable in the past that 13 levels and five tunnels, each driven many hundreds of feet, are the result of ore sales, as only 50007. was raised 15 years ago for working capital.

Ruby and Dunderberg,  $\frac{3}{4}$  to  $\frac{1}{2}$ ; the weekly report advises steady work going on at the Home Ticket Mine on the new system of payment, but the roads were so blocked with snow that it was impossible to send down any ores from the mines. At the Dunderberg Mine 22 tributaries were at work, and the tunnel at the Lord Byron was progressing slowly, the ground continuing very hard. The telegram received on Tuesday advises a continuance of snow; it is the most severe snowstorm that Eureka has suffered under for many years past.

In Lead Mine shares there is an almost utter absence of business, and quotations are purely nominal. Roman Gravel is quoted 5 to  $\frac{5}{8}$ ; the ends, according to the agent's report, are looking well, and producing fair quantities of lead ore, while the stopes and other points of operation are also producing lead ore, thus showing how exceedingly rich for lead ore this mine is, and it only needs a better price to enable the directors to pay dividends, and this is shortly expected, as the imports of lead ore into this country are falling off, whilst there is a somewhat better demand at home for lead and lead ores.

Tankerville Consols,  $\frac{3}{4}$  to  $\frac{1}{2}$ ; a long report has been received from the managers, giving the value of points in operation and sales and samplings of lead and blende.

Leadhills,  $\frac{3}{4}$  to  $\frac{1}{2}$ , and have been in better demand during the week. The several lodes in the mines continue to look well, and are producing large quantities of lead ore. The new engine which has been erected at Reid's dressing-floors is working exceedingly well, and will be the means of increasing the returns of the dressing-floors.

The Council of Administration of the Ottoman Public Debt announces that the interest due March 1 on the General Debt and other loans mentioned in the Imperial decree of Dec. 20, 1881 (except the lots Turca), will be paid on and after March 13 at the rate of 1 per cent. per annum on the capital indicated in the table annexed to the decree. The Imperial Ottoman Bank, charged with the service and keeping of the Ottoman Public Debt ledger, will announce the mode and place of payment.

The Montana Company directors have received telegram from Mr. George Atwood, F.G.S., the manager of the mines:—"Maskelyne Tunnel in 1080 ft. on Feb. 23; one half of drift clay-slate; appearance most favourable; cutting lode; new mill ready; run about end of next month; compressor working very satisfactorily driving drills; pump-hoists in mine, and Maskelyne Tunnel rich ore at bottom winze; No. 1 depth, 13 ft."

The Antrim Iron Ore Company at their half-yearly meeting in Belfast declared a dividend at the rate of 2  $\frac{1}{2}$  per cent. for the six months ending Dec. 31. They have also placed 10007. to the credit of steamers renewal fund, put 5007. for depreciation of mines and plant, and have carried over a balance of 4137. to the credit of next account.

The Birmingham Railway Carriage and Wagon Company have resolved that the preferential dividend on the paid-up 67. per cent. capital to Dec. 31 (less income tax) be declared and paid forthwith; and that a dividend at the rate of 57. per cent. per annum for the half-year (free of income tax), on the paid-up ordinary capital of the company to the same date be also declared and paid forthwith.

The Imperial Ottoman Bank notify that a drawing of Turkish Priority Five per Cent. Bonds (for redemption at par on March 13) took place on Feb. 21. A list of the numbers drawn may be had on application at the offices of the London agency of the bank, 26, Throgmorton-street, E.C.

At the Stock and Share Auction and Advance Company's sale, on Thursday, the prices obtained, among others, were—Northumberland Avenue Hotel, 97. paid, 27. 17s. 6d.; Cartago Gold, 5s. paid, 6d. pm.; Kapanga Gold Mine, 3s. 3d.; Érated Bread, 11. shares, 30s.; Spitzkop (Lydenburg) Gold, 5s. paid, 6d. premium; Union Steamship, 137. 17s. 6d.; Nouveau Monde, 3s. 6d.

Messrs. James Dixon and Sons, of Sheffield and London, have been awarded the Gold Medal, at the Calcutta International Exhibition for their manufacture of silver and electro-plated goods.

The Wrexham, Mold, and Connah's Quay Railway Company report, presented at the meeting on Thursday, stated that the capital arrangements authorised by the Act of last Session of Parliament have been carried out during the half-year, and all ascertained liabilities have been discharged. The revenue account shows the total receipts from all sources to be 16,9677., as compared with 15,0787. for the corresponding six months in 1882, an increase of 18897., making the average earnings of the line 47. 12s. 3d. per mile per week. The expenditure show

a decrease of 28727., being 98527. as compared with 12,7257. in 1882. The directors have every reason to anticipate that this gratifying decrease in the expenditure will be of a permanent character, and that the percentage of expenditure on the constantly improving gross receipts will be further gradually reduced. As compared with 23537. in 1882 the balance carried to net revenue is 71147., which is available, after payment of the Buckley Railway rent, for interest on the company's debenture stocks. Interest at the full rate of 4 per cent. on the A debenture stock, and at 3  $\frac{1}{2}$  per cent. on the B debenture stock, was accordingly paid to the proprietors of these stocks on the 1st inst., leaving a balance of 3617. to be carried forward to next account. The construction of the branches authorised in 1882 to connect the Westminister, Plas Power, and Gatewen Collieries with the main line is being proceeded with, and these important feeders will, it is expected, be ready for opening during the current half-year. These branches will also accommodate an important populous mining district. The directors congratulate the shareholders on the position and improving prospects of their undertaking, which they have every reason to believe will become one of the most successful railways in this country.

OSCAR GOLD MINE.—Last week there was a reference to remarks that had been made that the circumstances connected with the Oscar gold field were very similar to those of the celebrated gold region in Russia, the annual production of which was of the value of about 4,000,0007. A correspondent has since called attention to the fact that two of the principal mines in Russia, being in latitude 58° and 60°, are in the same belt of latitude as the Oscar (60  $\frac{1}{2}$ °). According to Humboldt the gold in the former is found, among other combinations "mixed with fragments of chlorite slate." The rich gold veins in Brazil, especially those in the Province of Minas Geraes, where the Morro Velho is situated, are composed of mica-slate, clay-slate, schists, iron pyrites, arsenical pyrites, and occasionally copper ore; gold is found also in veins traversing metamorphic rocks, and disseminated through the rock in some places. At the Oscar Mine Capt. Plummer states the lodes are formed of calcareous spar and veinstone containing a little copper, some iron pyrites, and arsenical pyrites; and the rock formation is granite, gneiss, mica, schist, and clay-slate of a highly mineralised character. He further says that gold is found in the slate by the side of the lode, and we have before mentioned the fact that a stone broken from the country rock near the lode, 150 fathoms south of the shaft, had upon assay yielded 13 ozs. of gold per ton. Our correspondent, therefore, comes to the conclusion that the formation in which gold is found in Oscar is similar to that of the rich gold mines of Brazil, and that Oscar is in the same degree of latitude as that of two of the chief gold mines in the Ural Mountains.

ORITA.—The work being carried on here is described as stupendous, and it is considered not surprising, in view of the many difficulties which beset foreign mines, that its completion has taken longer than was expected. So soon as completed, however, the mines should begin to make immediate profit, and in a report to the shareholders, issued some time back, an experienced hydraulic miner stated that he considered the company should be able to pay something like the whole of its capital back in dividends during the first six months after the water is turned on.

BRATSBURG.—There is another cargo of copper ore at Skien waiting for shipment. The general meeting was held to-day *pro forma*, and adjourned to March 13, when Captain Daw will be present; and as many of the shareholders as possible should attend, that they may obtain full information respecting their very valuable property. The development of the mines and the returns are fully bearing out all anticipations.

ORGANOS.—A return of 150 ozs. of gold was anticipated for the month, but the continuance of the wet season having prevented the carrying of mineral from the Socorro vein, one of the principal sources of supply, the return was only 65 ozs. On the whole, the report is considered satisfactory, as the prospects both of Constanca and Socorro continue favourable, while a large quantity of good auriferous quartz has been taken from the latter, and a commencement was to be made in carrying this to the mill the day following the dispatch of the report. It is thought, therefore, that the next return will prove of an exceedingly satisfactory character, and yield a considerable profit. The manager speaks in the highest possible terms of the Socorro Mine, and entertains a high opinion of the whole.

GAS SHARES.—The principal business in these shares, according to this evening's report of Messrs. W. L. WEBB and Co., of the Stock Exchange and Finch-lane, has been:—Bahia (Limited), Ordinary, 27  $\frac{1}{2}$ ; Bombay (Limited), 6  $\frac{1}{2}$ ; ditto, ditto, New, 4  $\frac{1}{2}$ ; Brighton and Hove General, Ordinary, 24  $\frac{1}{2}$  to 25; British, 40  $\frac{1}{2}$  to 41  $\frac{1}{2}$ ; Buenos Ayres New (Limited), 10  $\frac{1}{2}$  to 10  $\frac{3}{4}$ ; ditto, ditto, 6 per cent. Debenture, 1938, 96 to 97; Continental Union (Limited), Ordinary, 33  $\frac{1}{2}$ ; ditto, ditto, New, 1869 and 1872, 23  $\frac{1}{2}$  to 24  $\frac{1}{2}$ ; European (Limited), 19  $\frac{1}{2}$ ; Gas Light and Coke, A, Ordinary, 200 to 201  $\frac{1}{2}$ ; ditto, H, 7 per cent. Maximum, 140  $\frac{1}{2}$ ; ditto, J, 10 per cent. Preference, 220 to 221; ditto, 4 per cent. Debenture Stock, 103 to 105  $\frac{1}{2}$ ; Imperial Continental, 188  $\frac{1}{2}$  to 189  $\frac{1}{2}$ ; Monte Video (Limited), 16 to 16  $\frac{1}{2}$ ; Oriental (Limited), 7  $\frac{1}{2}$ ; Rio de Janeiro (Limited), 25 to 25  $\frac{1}{2}$ ; San Paulo (Limited), 13  $\frac{1}{2}$  to 13  $\frac{3}{4}$ ; South Metropolitan, A, 258  $\frac{1}{2}$  to 262; ditto, B, 218 to 220; ditto, Perpetual 5 per cent. Debenture Stock, 127  $\frac{1}{2}$ . Gas stocks steady; little doing.

INSURANCE SHARES have, according to this evening's report of Messrs. W. L. WEBB and Co., of the Stock Exchange and Finch-lane, been dealt in as follows:—Alliance British and Foreign, 39  $\frac{1}{2}$ ; Alliance Marine (Limited), 20  $\frac{1}{2}$ ; Atlas, 16  $\frac{1}{2}$ ; City of London Fire (Limited), 7  $\frac{1}{2}$  to 7  $\frac{3}{4}$ ; City of London Marine Insurance Corporation (Limited), 2  $\frac{1}{2}$  to 3; Commercial Union, 19; Employers' Liability Assurance Corporation (Limited), 2  $\frac{1}{2}$ ; Fire Insurance Association (Limited), 19  $\frac{1}{2}$  to 19  $\frac{3}{4}$ ; Guardian Fire and Life, 59  $\frac{1}{2}$  to 60; Imperial Fire, 134 to 135; Imperial Life, 23  $\frac{1}{2}$  to 23  $\frac{3}{4}$ ; Lancashire, 4  $\frac{1}{2}$ ; Law Life, 118; London, 54  $\frac{1}{2}$ ; National Marine (Limited), 17  $\frac{1}{2}$  to 17  $\frac{3}{4}$ ; Northern, 42 to 42  $\frac{1}{2}$ ; Railway Passengers, 7  $\frac{1}{2}$ ; Royal Exchange, 337 to 390; Universal Marine (Limited), 6  $\frac{1}{2}$ . Insurances firm, especially Commercial Union, Marine, Alliance Fire and Life.

TRAMWAYS.—The closing prices of this evening, as quoted by Mr. WM. ABBOTT, of Tokenhouse-yard, are given in tabular form in the last page of the Journal.

RAILWAY AND GENERAL MARKETS.—Referring to the course of business done to-day during official hours (11 to 3) Mr. Ferdinand R. Kirk Birch-lane, writes:—"Opening: American railway shares are very much depressed, owing to a heavy fall yesterday at New York, a fresh campaign against stocks having evidently been opened there by 'bears.' Lake Shore have dropped 2; Atlantic Firsts, 1  $\frac{1}{2}$ ; Wabash, 1; and Readings,  $\frac{1}{2}$ . Grand Trunk stocks have fallen in sympathy, the Ordinary being 1  $\frac{1}{2}$  to 1  $\frac{3}{4}$ , and the Thirds 37  $\frac{1}{2}$  to 37  $\frac{3}{4}$ . Unified are again in demand, now 68  $\frac{1}{2}$  to 69  $\frac{1}{2}$ . Mining shares maintain their position; the settlement concluded yesterday showed rather an overvalued market. Bratsberg, 1  $\frac{1}{2}$  to 1  $\frac{3}{4}$ ; Old Shepherds,  $\frac{3}{4}$  to 1; East Wheel Rose,  $\frac{3}{4}$  to  $\frac{1}{2}$ ; Home Mines Trust,  $\frac{3}{4}$  to  $\frac{1}{2}$ ; Mounts Bay, 4s. to 6s.; Tresavean, 8s. to 10s.; Van, 1  $\frac{1}{2}$  to 1  $\frac{3}{4}$ ; Prince of Wales,  $\frac{3}{4}$  to  $\frac{1}{2}$ ; Devon Consols, 3 to 3  $\frac{1}{2}$ ; Wheel Grebor, 1  $\frac{1}{2}$  to 2  $\frac{1}{2}$ . Closing: Trunks have recovered to yesterday's closing, and American shares are not lower than at the opening. Mexican Railway stock, after being neglected, is now  $\frac{3}{4}$  up, at 47  $\frac{1}{2}$  to 48; Unified  $\frac{1}{2}$  lower, La Plata,  $\frac{3}{4}$  to  $\frac{1}{2}$ ; Emma,  $\frac{3}{4}$  to  $\frac{1}{2}$ ; Teocach, 1  $\frac{1}{2}$  to 1  $\frac{3}{4}$ ; Potosi, 4  $\frac{1}{2}$  to 5; Potol,  $\frac{3}{4}$  to  $\frac{1}{2}$ ; Richmond, 3  $\frac{1}{2}$  to 4  $\frac{1}{2}$ ; Akankoo, 8s. 9d. to 11s. 3d.; United Mexican, 8  $\frac{1}{2}$  to 9.

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Australian Copper. 20 Mounts Bay. 10 United Mexican.  
100 Chontales. 15 Montana. 20 Wheel Grebor.  
20 Colorado. 100 Nouveau Monde. 15 Western Andes Gold.  
10 Devon Consols. 25 New Trumpet Consols. 30 West Callao.  
75 Port Phillip.

VICTORIA GOLD (Venezuela).—I strongly recommend the immediate purchase of these shares for an important rise; also CORPORATION OF SOUTH AUSTRALIAN COPPER.

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### Notices to Correspondents.

**SAN MARTIN MINE.**—"L. B." (San Francisco).—Any details which you may forward concerning the property will receive attention, but the mere statement that you have resided now and then for three years at Uruachio in the district of Rayon, Chihuahua, and that the mine has been offered for sale in London and other European cities, does not indicate with sufficient accuracy the value of the mine.

**IMPROVED MONITOR.**—"A. H." (Edgbaston).—We have not heard that a prohibitory law has been passed against hydraulic mining in California, though such a step is not improbable. What your correspondent probably refers to is the equity decision of Judge Sawyer in the suit of Woodruff v. the North Bloomfield Gravel Mining Company, which made the injunction perpetual, virtually prohibiting hydraulic mining. The precedent will probably be followed wherever that system is carried on, the enormous injury to the non-hydraulic portion of the community being universally recognised. It is quite true that the monitor manufacturer has been practically extinguished.

**Received.**—"C. R." (Southampton). The meeting was duly attended, and is reported in another column.—"No Name" (Post Card). Reporter sent to Transvaal, Gold, Exploration, and Land Company, as desired; but not admitted.—"D. K. A." (Real del Castillo). Insisted in modified form.—"Fair Trade" (Tavistock). The figures have since been demonstrated to be false and fraudulent, and your arguments being based upon them, we thought you would prefer the omission of your letter.—"W. and F." (St. Paul, Minn.). Answered by post.—"H. and S." (Bradford). The post-card could not be construed to give authority for insertion.—"J. C." (Southgate). Inadmissible; if the shares be selling below their value, your remedy is to purchase them, not to compare them with others, which you consider to be selling at too high a price.—"G. B."—"T. M."

## THE MINING JOURNAL,

Railway and Commercial Gazette.

LONDON, MARCH 1, 1884.

### COMPARATIVE MERITS OF SAFETY-LAMPS.

The doubt which recent experience has created with regard to the safety of the Davy lamp causes especial interest to attach to such papers as that on the Typical Mueseler Lamp, read before the North Staffordshire Mining Institute on Monday evening, by Mr. A. R. SAWYER, Assistant Government Inspector of Mines. Though quite convinced of the superiority of the Mueseler to the Davy lamp as a gas detector as well as a working lamp, Mr. SAWYER had, he said, thought it advisable to put that beyond any more doubt, and for purpose he had placed the results of about 50 experiments in a tabular form before the Members of the Institute, of whom some were present when the experiments were made. The lamps were both filled with ordinary vegetable oil (colza, or rape) they were well cleaned and properly trimmed. They were elevated to where the gas was, or towards it, as in the case of a blower, close together, the flames being on the same level. The examinations had been conducted with the greatest care, and as much accuracy as possible under the circumstances, and the result of each experiment made had been noted down. He did not specially choose the places, but conducted the experiment wherever gas was reported to him. Having conducted underground the experiments in conditions which were met with daily, though, perhaps, rough and ready, they were to his mind of as much value as many such conducted in a laboratory under conditions which were, perhaps, seldom experienced. With a blue flame the Mueseler indicated the presence of gas sooner than the Davy in almost all the experiments. On being elevated towards the undisturbed accumulation of gas the Mueseler not only indicated the presence of gas first, but was extinguished, if not withdrawn in time, before the Davy showed any trace of it. This result was easy of explanation. An accumulation of gas in a pot-hole or in a waste lies there in the form of a stratum or body, the line of demarcation between which and the underlying air, was more or less distinct. When the top of the Mueseler lamp, on being elevated, reached this layer of gas the strong current—which was produced in the Mueseler by the presence of the tube which it contained displaced some gas and sucked it to the flame of the lamp before the flame itself reached the level of the gas as it had to do in the Davy, before it was able to show any indication. He had on several occasions found gas with the Mueseler in small pot-holes, into which the Davy had previously been inserted until it touched the roof and not been tilted without disclosing any. The layer of gas being shallow the Davy flame could not reach it, whilst the Mueseler lamp sucked it and brought it to the flame. With a white flame the Davy had the advantage by about a second in one of the experiments and a slight vibration in the Davy preceded an equal draw in both.

The atmosphere in those cases was more or less disturbed, and in a more or less oscillatory condition. On suddenly coming in contact with the lamps the gas indicated on the Davy flame first, its ingress to the Mueseler flame having been slightly impeded by a contorted route. But such cases were exceptional. The same explanation applies to those cases in which the gas in motion flushed in the Davy before giving any indication of its presence. In all the other experiments the Mueseler was first in detecting the presence of gas. In quiescent conditions the Davy was behind the Mueseler as an indicator in every case, whether the flame was reduced or not. Nos. 23 and 24 experiments made in the briskest of all currents, and in the most disturbed atmosphere of all, repeated over and over again, persistently showed the Mueseler lamp to be the most sensitive. This also showed that the Mueseler lamp could be withdrawn previous to a flash with perfectly sufficient evidence of the presence of gas. This was done constantly by the manager; also that even after the flash in the lamp it could generally be withdrawn lighted, if only the trial was made with a luminous flame. If left two seconds in this condition it went out. Again, they had the flash in the Davy without any previous warning, and this, moreover, in a current, the velocity of which had been known to pass the flame. The prohibition to enter that part of the mine except with a Mueseler showed great judgment. The experiments made at a blower at Great

Fenton corroborated the above remarks. On being struck on Dec. 12 the blower suddenly burst out and flashed inside the Davy which the collier carried with him lighted in his flight, without fortunately lighting the gas. The Davy showed a great defect as a gas detector from the shortness of the indications, which were often quite absent before the gas actually flashed. That was especially noticeable compared to the generally gradual indications which preceded a flash in the Mueseler, and made the exposure to it quite unnecessary. Those experiments, though made principally with a view to test the lamps as gas detectors, showed very forcibly the great superiority of the Mueseler over the Davy in the hands of colliers at fiery collieries. The Mueseler was always extinguished in explosive mixtures after a few seconds, except where purposely lowered in time for the flame to remain in. The gas in the Davy, with one or two exceptions continued burning, and would have done so until the lamp became red-hot and ignited the gas outside. Though the fire-damp showed different characteristics as regarded smell and feel, he believed it in the main to have been a mixture of marsh gas, hydrogen and carbonic anhydride, with, perhaps, in some cases, some olefant gas, and a little sulphuretted hydrogen. Though he did not know of any experiments having been made to that effect, he believed that fire-damp like that which exploded in the lamps with a sharp report, and without any previous indication, as in two experiments, and possessed a sweet alliacious odour might contain some olefant gas. He had noticed this odour and phenomenon several times in upper seams of North Staffordshire, but not in the Bullhurst seam, in which the gas was generally odourless and very sharp. How far the composition of the fire-damp affected the result, if at all, he was unable to say, as its analysis, if practicable, would have taken too much time for him to undertake. But he did not believe that it could so much have differed in the different cases as to affect the result. In 1880 he read a short paper before the Members of the North of England Institute of Mining and Mechanical Engineers, which would be found in their Transactions for that year. Since then he had used the same Typical Mueseler lamp during his inspections almost daily and under varying conditions, and he could only repeat that he considered it the best lamp taken all round for purposes of examination as well as for colliers to work by, which he had yet met with. When he came to North Staffordshire five years ago he brought the first Mueseler lamp into the district; now they were in use at almost every colliery more or less. All the officials and men who had handled them daily for a sufficient length of time to have become accustomed to their use spoke in favour of them, not being so far as he knew inconvenienced by their liability to extinction when held to one side too long. He had found that the lamps could be tilted long enough to examine the roof by without going out, and the limit of time to allow became instinctive. It was certainly not without good reason that after the typical Mueseler lamp had been subjected to careful and prolonged trials by several Royal Commissioners in Belgium, and found and declared to be in all respects superior to every other lamp brought before them, and to present the greatest amount of security, an Act was passed in 1876 making the use compulsory and prescribing all its dimensions.

When writing the paper read before the North of England Institute he had never seen a flash of gas above the horizontal gauze of his Mueseler lamp. Since then he had seen it on two occasions, when introducing it into a pot-hole containing gas, immediately followed by extinction of the flame. He had also found that a better flame was produced in the lamp by having two holes 1-12th in. in diameter in the wick-holder, one on each side of the wick. At the time of writing the paper before alluded to he recommended that firemen should use a Davy as well as a Mueseler for the work of examination, because of what he then thought was the liability of the Mueseler almost invariably to go out on the detection of gas. Greater experience had shown him that that was a needless precaution, that if the luminous flame was retained from  $\frac{1}{2}$  to  $\frac{3}{4}$  in. long the current which passed through the lamp already spoken of was increased, and sucked the gas sooner to the flame, and the luminosity test being the more sensitive of the two, a draw sufficient to indicate the presence of gas conclusively was at once perceived, and the lamps need not be elevated higher. If, however, the gas was very keen, and flashed in the lamp before it could be withdrawn, the flame of the lamp being large had sufficient hold of the wick, and recovered itself if at once withdrawn after the flash. In cases where the flame had been put out he had found generally that the Davy lamp flame was also extinguished. Mr. SAWYER also noted the approximation of percentage of gas found in the experiments. From his experience dusty mines in which the air current contained a percentage of gas dangerous enough in the presence of the flame of a shot, but ordinarily invisible to the lamp, that percentage must occasionally so increase as to show two or even three in the lamp, and this occasional find ought to be enough, if not to induce the total abandonment of blasting to restrict it to a minimum, and this only in early morning before the men descend and the pit had had time to cool, and after the most careful examination had been made by trustworthy men. Mr. SAWYER appended to his paper extracts from an account of some experiments conducted in the laboratory of Messrs. MALLARD and LE CHATELIER for the French Commission on Accidents in Mines, those results being favourable to the Mueseler as compared with the Davy for showing the presence of gas.

### THE SOUTH YORKSHIRE STEAM COAL, AND THE HULL AND BARNLEY RAILWAY.

In anticipation of the opening of the Hull and Barnley Railway, which must result in the exportation of a vast quantity of the well-known South Yorkshire coal, attention is now being directed to the special qualities of that description of fuel. What is known as "Barnley hards" is admittedly a fine steam coal. It is particularly hard, so that in its transit from the pit to the hold, or bunkers, of a steam vessel it makes less small than either the South Wales or Durham coal, and consequently gives off but little gas, whilst there is no record of a vessel laden with it being lost, either by explosion or spontaneous combustion. It makes but little clinker or ash, and is less destructive than other coal to bars and plates. From a series of experiments made at Portsmouth, by order of the Lords of the Admiralty, it was shown that the South Yorkshire coal (Rondwood Colliery) in a given quantity gave 3.23 per cent. of clinker and ash; Hood's Merthyr, 4.68 per cent.; and Cowper Cambos Hartley (Newcastle), 3.48 per cent. The South Yorkshire steam coal is also extensively used in foreign railways, for which it is also well adapted. In the Mauritius from a report to the Admiralty, it is stated that the Government put to the test of practical experience several descriptions of coal, which were reported upon by Mr. W. H. SCOTT, Engineer and Manager of Railways; Mr. MORGAN, Harbour Master; and Mr. CONNALL, Surveyor-General.

The report addressed to the Admiralty states that "no direct experiments were carried out upon the railway, as it has long been known by one of the members of the committee that Australian (Lambton) and South Yorkshire are the most suitable and economical for the engines of this railway. Cardiff is unsuitable from its great heat and the quantity of ashes formed, and Scotch is not mechanically strong enough to resist the intense blast." The softer part of the same seam, it may be said, is a good house and gas coal, and well adapted for coke making. An analysis taken from the heap gives 10,500 cubic feet of gas per ton, with 41.27 lbs. of tar and ammoniacal water, with very little carbonic acid or sulphuretted hydrogen. The specific gravity of the coal is 1.284, and the sulphur taken from the hard coal is only from 0.3 to 0.5 lb. per ton. It may be said that the South Wales coal evaporates more water than either the Durham or South Yorkshire, and makes less smoke. The South Yorkshire "hards," however, has the advantage of extreme hardness, and does not lose any of its steam and other properties on the longest voyages, being as good after a journey of 10,000 or 12,000 miles as it was at starting. As to the ashes and clinker made, it appears from the result of some trials made at Woolwich by order of the Lords of the Admiralty, with respect to several qualities of coal that the South Yorkshire made much less clinker and ash than the others.

In a given quantity of coal, Newcastle West Hartley gave 206 lbs.

of ashes and 48 lbs. of clinkers; Welsh Merthyr 238 lbs. of ashes and 32 lbs. of clinkers; and the South Yorkshire 180 lbs. of ashes and 2 lbs. of clinkers. With such a quality of coal indirect communication by railway to Hull, and a low carriage rate, it will be evident that the opening of the new line of railway must result in the exportation of a vast quantity of coal from that port. Hull, indeed, by its railway connection with the South Yorkshire coal field, must become one of the most important coal shipping ports in the kingdom, and a powerful rival to both Cardiff and Newcastle. The railway company depending so much as it must do on the coal traffic for South Yorkshire will do all that is possible to develop the mineral wealth of the district, and in so doing there will be the hearty co-operation of the owners of steam and other vessels, as well as the merchants and coal shippers of the port, who are all interested in the success of the Hull and Barnley Railway.

### MARINE CRANK SHAFTS.

An interesting paper on the forging and finishing of marine crank shafts was read before the members of the Manchester Association of Employers and Foremen, at their meeting on Saturday, by Mr. C. O'CONNOR, of Liverpool, the chair being occupied by Mr. THOS. ASHBURY, C.E., the President. Mr. O'CONNOR, who said he did not desire to raise any question between iron and steel, or which was the best mode of making marine crank shafts, solid or built, described the process of forging and finishing carried out at the Mersey Forge, with which he is connected, and urged that eventually it would be found that almost more depended on the mode in which a crank shaft forging was constructed than on the material of which it was made. With regard to material, he emphatically condemned the use of scrap, of which such large quantities find its way into the forges of the shipyards, owing to its want of uniform quality often resulting in seams or black marks, which by many engineers were considered sufficient to condemn almost any finished shafting. So constantly did this occur that at the Mersey Forge they had adopted a system of making such forging of new iron puddled direct from the pig and then hammered under the steam hammer into square billets, which were afterwards re-heated and rolled into flat bars,  $\frac{1}{2}$  in. by  $4\frac{1}{2}$  in., and these when cut up into proper lengths, and again piled and shingled into the slab, resulted in a material possessing somewhat the cleanness and density of steel, while retaining all the toughness and tenacity of superior malleable iron. By this means the forging was free from the streaks and seams of the scrap iron. Some forge masters thought this freedom in using new iron was acquired at the expense of strength. He was not, however, of this opinion, as by using cold-blast iron the crystals would be as fine and small as in steel. For extra large crank shafts, the fear of unsoundness arising from the ordinary mode of forging had led some engineers to consider the propriety of building the cranks in separate pieces. One advantage in a built-up crank was that, should there be a flaw, it might be confined to one part only; whereas in a solid crank it might necessitate the condemnation of the whole shaft. His impression was that large shafts would still have to be dealt with in pieces, not because it was a question of being able to make large forgings sound, but because marine engineers would not care to run the risk of anything going wrong with large shafts, and ships having to wait until another could be finished. The built crank would however be 25 per cent. heavier than a solid one, and this was viewed as a disadvantage, although it was not attended with much extra cost. The building up of large shafts, if they had capable tools, presented no difficulties whatever, and one firm with which he had been connected had turned out a crank shaft 58 tons in weight, which was built up in 15 independent pieces. In the mechanical engineering of the future they would have to rely upon their tools for putting large pieces together much better than had been done formerly, and he would find no difficulty in dealing with crank shafts up to 100 tons, which he thought would have to be made within the next few years. Taking into consideration the vastly accelerated speed of the marine engine in late years, and the many disastrous effects which followed the breaking of a shaft at sea, also that the tendency of the age was still towards much higher pressure of steam and further lengthening of stroke, it was not surprising that improvements in such an important part as the crank should be eagerly sought after, but it had hitherto been sought in the direction of material alone.

Cast-steel had been advocated, and, to some extent, brought into use, but its expense rendered such shafts costly out of all proportion to other parts of the engine; whilst in the event of their heating when at work, a very frequent occurrence, and having the water hose directed on the crank-pin or journals, it could not be expected that the material would behave any better or even so well as tough wrought-iron. To his experience steel shafts had broken very suddenly, without giving any previous warning, and others had exhibited some very slight cracks or marks, after which it was not safe to work them a day longer. An iron shaft, however, would show some flaw or mark before it broke. These flaws might be watched, and could be traced from time to time, and thus sufficient warning was given to enable the necessary repair to be put in hand, and got ready without causing any delay. It was certainly far better that a forging should give notice rather than fail suddenly. In conclusion, Mr. O'CONNOR explained what, in his opinion, was the frequent cause of the breaking of crank shafts. It was not in all cases the fault of the material—steel or iron—or the manufacture. It was well known that marine crank shafts were exposed to very severe, uncertain, and unequal strains. If the shaft bearings were not properly true, the bearings would work unequally, and there was a strain thrown on the shaft which tended to shorten its life, which rendered it only a question of time when a marine engine crank or a locomotive crank would break. Again, cranks were very often permitted to run with slack bearings. Supposing an engine were making 120 strokes or knocks to the minutes on a piece of iron it destroyed the fibre, and thereby rendered it crystalline; that was not healthy for the shaft; it tended to destroy its life, and its giving way was only a question of time. The thrust of a shaft, if not properly attended to, brought a side action upon the after part of the crank, which tended to bend it backwards and forward, and in the course of time there was a fracture either at the neck of the journal or through the web of the crank.

In the discussion which followed the reading of the paper the question of the relative merits of iron and steel for marine cranks was pretty keenly introduced, and the general view was that steel would eventually take the lead because of the more perfect homogeneity of the metal; and that however good iron cranks might be made the time would come when they would be superseded by steel. In answer to several questions, Mr. O'CONNOR said that where cranks the most frequently gave way was through some flaw in the pin or across the neck. Although they might have a lighter shaft made of steel, he did not consider this a very great advantage. As to hollow shafts, he considered that whether they were made of steel or iron they had a much stronger shaft when they were made solid. The usual vote of thanks to the reader of the paper closed the proceedings.

**REOPENING OF EXTENSIVE IRONSTONE MINES IN CLEVELAND—IMPORTANT DISCOVERY OF JET.**—Until within a few years past the Rosedale Mines were amongst the most important in the Cleveland district, but were closed in March, 1879, at that time being possessed by the Rosedale and Ferryhill Iron Company (Limited), Mr. Martin Morrison being the manager. The company had 10 blast-furnaces, and at the time of the stoppage or just before five were in blast. In one year 550,000 tons of ore were raised from the east mine alone, whilst in 1874 the produce of the two was 473,140 tons. It is now understood that these valuable and well-known mines are about to be opened out, having been leased to a large iron company. The opening of the mines will be a most important matter for Pickering, as it will lead to the employment of large numbers at a most opportune time, whilst an important section of the North-Eastern Railway, constructed principally for the conveyance of iron ore, and running direct from the east mines to Ingleby Junction, and constructed in 1859, will be again put into operation. In addition to the valuable and vast beds of ironstone it appears that some important depo-



**CORNISH MINING, AND THE PRICE OF TIN.**—With regard to the price of tin Capt. Boyna, of Wheal Owles, observes that although the price of tin is too low for the mine he represented they got on in St. Just. Were they, he continued, to except Dolcoath, East Pool, South Condurow, and one or two other mines, they ought not to grumble. St. Just United was a productive mine, and he was glad for that fact for more reasons than one. He was pleased that Botallack had improved, and he was gratified that they had done as well that day in Levant. The accounts presented were more favourable than he had expected. At the same time they must not lose sight of the fact that they had raised a tremendous quantity of mineral, and that nothing came to the adventurers. If they could not live with tin at its present price, or a little higher, they must succumb. Cornish mining had never had such a tight fight as at the

CORT'S BRIGHTON, &c., 78; and **STOCKS** are a little better in tone, but the improvement does not travel far, being restricted to the best-estimated concerns. The floating of new concerns is looked on as going too far, at any rate by holders of the older-established concerns.

**TELEGRAPHS** without change, excepting **Anglo**,—are easier, the Ordinary  $\frac{1}{2}$ , Deferred  $\frac{3}{4}$ , and Preferred  $1\frac{1}{2}$ .—**TELEPHONE**.—Not much doing. **LOCAL**, **London**, **South**, and **Nationals**, 1 to  $1\frac{1}{2}$  higher. **UNITED**,  $\frac{1}{2}$  lower.—**CANALS**.—**Bridgewater**,  $\frac{1}{4}$  higher; **Bux**,  $\frac{1}{2}$  down.—**CORPORATIONS**.—**STOCKS**, &c., quiet, but without change in quotations, have a decline of  $\frac{3}{4}$  in **Leeds Debentures**.—**MISCELLANEOUS**.—Beyond a rise of 2 in **Manchester Royal Exchange Buildings**, and  $\frac{3}{4}$  to  $1\frac{1}{2}$  in **Hudson's Bay**, there is no change of note, and business passing is small in amount.

**RAILWAYS**.—A general depression of values is to be noted, consequent on the disincorporation of the **Great Eastern** and **Great Northern** companies, and as to the likely result of the settlement, but as yet to present nothing disquieting has transpired hopeful feelings predominate. **Brighton's** have Augu-

The condition of the Belgian Coal Trade has not experienced any material change, prices being still maintained with some difficulty. New contracts have become scarce, and as metallurgical industry is not in a more hopeful state, the prospect of an advance or recovery in coal quotations becomes weaker and weaker. The production of industrial coal still appears to be too large in Belgium, notwithstanding that some reductions have been made in it. The coal traffic of the Belgian State Railways has been rather falling off of late. As an illustration of this we may state that the number of trucks



carrying coal and coke which passed over the system in the week ending Feb. 17 was 16,757, as compared with 17,514 in the corresponding seven days of 1883. The production of coal in the French departments of the Nord and the Pas-de-Calais amounted last year to 10,051,461 tons, as compared with 9,594,942 tons in 1882. The total of 10,051,461 tons representing the extraction of last year was made up as follows:—Nord, 3,903,212 tons; Pas-de-Calais, 6,148,249 tons. The production effected in the Nord last year showed an increase of 32,894 tons, while that of the Pas-de-Calais expanded to the extent of 423,625 tons, making the increase for the whole year 456,519 tons. This latter total may be subdivided thus:—First half of 1883, 401,476 tons; second half, 55,043 tons. The increase thus proceeded at a reduced rate during the second half of last year, a circumstance which may be, no doubt, explained by the general slackening in industrial operations during the second half of last year. The demand for industrial coal in Germany has continued weak and inactive.

### Registration of New Companies.

The following joint-stock companies have been duly registered:—

**THE COWPEN COAL COMPANY (Limited).**—Capital 399,000*l.*, in shares of 100*l.* Taking over and carrying on the business of the Cowpen and North Seaton Coal Company, and the mines, works, property, and assets of said firm, at the sum of 399,000*l.*, to be paid by the allotment to the present members in shares credited as fully paid-up, and to continue the business of coal and coke owners, dealers in and manufacturers of coke, coal, patent fuel, ores, ironstone, bricks, tiles, and other products of mining and quarrying. The subscribers are—J. Straker, Corbridge-on-Tyne, 1330; J. Cookson, Morpeth, 315; W. J. Cookson, Worksop, 370; J. Henderson, Durham, 343; J. Liddell, Newcastle-on-Tyne, 264; G. B. Forster, Lesbury, 382; W. H. Taylor, Chipchase Castle, 300; C. Taylor, Coal Exchange, 147; T. Taylor, Chipchase Castle, 30; J. Coppin, Binglefield, 264; C. B. Lamb, Belton Hall, 83; M. W. Lamb, Bedford, 83; J. Liddell, jun., Newcastle-on-Tyne, 79.

**PATERSON, ZOCHONIS, AND COMPANY (Limited).**—Capital 50,000*l.*, in shares of 10*l.* The business of general merchants and traders in connection with Africa. The subscribers (who take one share each) are—G. H. Paterson, Stratford; J. W. Whitehead, Pendleton; G. Groeves, Longsight; J. R. Frame, Chorlton; J. C. Paterson, Bootle; H. G. Tippet, Liverpool; J. C. Cook, Sale.

**THE SEAMLESS HOSIERY COMPANY (Limited).**—Capital 10,000*l.*, in shares of 5*l.* To acquire and carry on a business established at Petersfield, Hants, under the style of James's Seamless Perfection Hosiery. The subscribers are—R. Cave, Lee, 10; M. James, Lipbrook, 20; J. N. Humphrey, Lipbrook, 4; W. C. Burley, Petersfield, 15; A. Goble, Petersfield, 20; E. S. Barley, Petersfield, 5; C. James, Petersfield, 10.

**THE ANGLO-SERBIAN BANK (Limited).**—Capital 1,000,000*l.*, in shares of 20*l.* The business of a banking, finance, commercial, trading, land, or railway company. The subscribers are—S. P. Brann, 17, Philpot-lane, 1000; F. W. Honischer, 30, Lime-street, 1; H. E. H. Jerningham, M.P. for Berwick, 1; J. Hatry, 41, Stamford-street, 1; S. S. Lloyd, 2, Cornwall-gardens, 1; S. Mandel, Balham, 1; H. Sparks, 17, Philpot-lane, 1.

**THE KNOTTON MANOR MINING COMPANY (Limited).**—Capital 64,000*l.*, in shares of 10*l.* To purchase the Knutton Farm Mine, situate in Staffordshire, together with certain rights, the buildings, plant, stock, chattels, and effects used in connection therewith, under the terms of a certain agreement, and to carry on the trades of colliery and ironstone mine proprietors, coke manufacturers, miners, smelters, ironfounders, brick and tile manufacturers, and clay merchants, in all their respective branches. The subscribers (who take one share each) are—B. Viggers, Knutton, coal and ironmaster; J. Street, Newcastle-on-Tyne, coal and ironmaster; C. Viggers, Newcastle-on-Tyne, coal and ironmaster; M. Stonehouse, Durham, widow; W. L. Viggers, Heighley, coal and ironmaster; G. D. Viggers, Stafford, chemists' assistant; H. R. Emberton, Newcastle-on-Tyne, coal and ironmaster. The first directors are—B. and C. Viggers, J. Street, and H. R. Emberton, the qualification being the holding of stock to the nominal value of 500*l.*

**THE ATKINS FILTER AND ENGINEERING COMPANY (Limited).**—Capital 50,000*l.*, in shares of 25*l.* To acquire and carry on a business late of 62, Fleet-street, and now of 33, Bouverie-street. The subscribers (who take one share each) are—A. Smith, Peckham; C. Imray, 75, Amherst-road; W. G. Atkins, 20, Charing Cross; F. H. Atkins, 33, Bouverie-street; V. H. Straker, 124, Fenchurch-street; R. Buckley, 9, Gee-street; H. Harrison, Camberwell.

**CLOSE LANE COAL AND FIRE-CLAY COMPANY (Limited).**—Capital 12,000*l.*, in shares of 1*l.* To acquire by purchase a certain colliery at Hindley, near Wigan, according to the terms of an agreement, and carry on the business of coal and fire-clay proprietors, fire-brick and tile manufacturers, and to sell and dispose of any of the products derived therefrom. The subscribers (who take one share each) are—F. N. Foulkes, Hindley; J. Hart, Hindley; B. M. Bradford, Liverpool; H. A. Pearson, Liverpool; J. Craig, Liverpool; W. Hart, Hindley; J. H. Lloyd, Liverpool.

**THE ST. JAMES'S CAB COMPANY (Limited).**—Capital 10,000*l.*, in shares of 1*l.* The general business of cab and coach owners and builders, horse dealers, &c. The subscribers (who take one share each) are—J. A. Wiggins, 48, Chancery-lane; G. S. Hall, 2, Metal Exchange Buildings; J. Lovell, Stepney; G. G. Harris, Wandsworth; R. H. Colegrove, Upper Tooting; E. Wallerman, 16, Bishopsgate-street; C. Dickinson, Crown Wharf.

**EAST DEREHAM GAS LIGHT AND COKE COMPANY (Limited).**—Capital 6000*l.*, in shares of 10*l.* To manufacture, sell, and supply gas in East Dereham and Scarning, Norfolk. The subscribers (who take one share each) are—W. T. Sidney, East Dereham; W. Alexander, East Dereham; A. E. Alexander, East Dereham; H. Page, East Dereham; L. E. Hatfield, East Dereham; G. A. Kingston, East Dereham; A. Massingham, East Dereham.

**THE HATTON COMPANY (Limited).**—Capital 15,000*l.*, in shares of 10*l.* To enter into an agreement for the purchase of 40 land claims, with the ground appertaining thereto situated in the Bultfontein Mine, Griqualand West, South Africa, and the plant and machinery there belonging to Ochs Brothers, and to carry the same into effect with or without modification, and thoroughly develop this or any other property, and to carry on in all branches the business of diamond miners and merchants, &c. The subscribers (who take one share each) are—S. Ochs, 83, Hatton Garden, merchant; L. Ochs, Paris, merchant; A. Einhorn, 83, Hatton Garden, M.E.; G. Ochs, 83, Hatton Garden, merchant; G. E. Colebrook, 14, George-street, clerk; J. McGowan, 14, George-street, clerk; T. F. Dalglish, 83, Hatton Garden, accountant.

**THE LIVERPOOL SYNDICATE (Limited).**—Capital 10,000*l.*, in shares of 1*l.* To purchase from the liquidator of the Central Foxdale Silver-Lead Mining Company (Limited) all the rights and interests in certain properties situated in the Isle of Man, and all houses, shops, buildings, engines, machinery, &c., belonging thereto, for the purpose of carrying on the business of mine owners generally, and dealing in, selling, and disposing of all matters, things, or products. The subscribers (who take one share each) are—J. B. Litherland, Liverpool, china and glass dealer; T. Hughes, Liverpool, mining agent; E. T. Guiggin, Douglas, timber merchant; G. H. Stuart, Liverpool, merchant; C. Ratcliffe, Liverpool, printer; J. Barnumphy, Wavertree, gentleman; W. Jiggins, Liverpool, out of business. No Articles of Association have been registered.

**THE NEW POTOSI COMPANY (Limited).**—Capital 300,000*l.*, in shares of 1*l.* To acquire certain mineral and agricultural properties and estates belonging to the Potosi Gold Mining Company (Limited), situated in the State of Guayana, Venezuela, and any other estates and mining rights and hereditaments and easements in same or other districts. The winning and working of gold, gold quartz, and other metals and minerals, and preparing same for the markets. Also the business of cultivators of the lands and property of the company. The subscribers (who take one share each) are—E. S. Jenks, Rottingdean, gold analyst; P. Jones, 55, Old Broad-street, merchant; G. Duff, 58, Queen's Gate, no occupation; E. W. Matthews, 10, Union-court Chambers, C.E.; W. Merrett, 38, Bishopsgate-street

Within, merchant; J. R. Rimpson, 42, New Broad-street, accountant; R. T. Latley, 16, Devonshire-square, solicitor. The number of directors not exceed nine or be less than three. Qualification, the holding of stock to the value of 500*l.*

**THE BRITISH AND FOREIGN BREWING AND DISTILLERY COMPANY (Limited).**—Capital 200,000*l.*, in shares of 2*l.* The business of brewers, maltsters, distillers, rectifiers, &c., in connection with certain patents. The subscribers (who take one share each) are—W. Turner, Winsford; S. C. Hadley, 5 Knight Rider-street; J. D. Carmichael, 13, Copthall-court; W. M. Latham, Sheffield; H. W. Blundett, Cornbrook; V. Veysey 26, Lombard-street; J. G. Kennett, 40, Elmore-street.

**THE OCEAN MARINE INSURANCE COMPANY** is re-registered, and becomes incorporated under the Limited Companies Liability Acts.

**THE STANMORE PALACE HOTEL (Limited).**—Capital 40,000*l.*, in shares of 250*l.* The usual business of hotel, restaurant, and refreshment-house keepers, &c. The subscribers are—F. Gordon, Bentley Priory, 8; E. H. Byas, 25, Belsiae Park, 4; H. L. Hammack, 59, Bishopsgate-street, 4; J. Pound, 81, Leadenhall-street, 4; A. Johnstone, 44, Finsbury Park, 4; F. J. Tompson, 12, Camden-square, 4; A. R. Holland, Trafalgar-square, 4.

**THE RANDALL CATTLE RANCH AND LAND COMPANY (Limited).**—Capital 250,000*l.*, in shares of 5*l.* To acquire lands and farms in America, and to breed and deal in all kinds of stock, cattle, horses, sheep, and produce. The subscribers (who take one share each) are—J. Graham, Clapham; A. Pearce, South Tottenham; J. Stephenson, 3, Pall Mall; C. H. Webb, Watford; J. E. Knight, 42, New Broad-street; W. H. Atkins, 110, Cannon-street; H. Bartlett, 20, Landrid e-road.

**THE STAFFORDSHIRE ERATED WATERS COMPANY (Limited).**—Capital 100,000*l.*, in shares of 1*l.* The manufacture and sale in Wolverhampton of erated and other waters. The subscribers are—J. C. Smith, Wolverhampton, 300; J. Faulkner, Edgbaston, 10; R. Chinn, Hampden-in-Arden, 10; E. Preston, Birchfield, 20; C. Richards, Birmingham, 10; W. G. Willshire, Birmingham, 10; W. H. Smith, Stafford, 60.

**THOMPSON'S PATENT BLEACHING COMPANY (Limited).**—Capital 100,000*l.*, in shares of 10*l.* To acquire, use, vend, or deal in certain patents connected with bleaching. The subscribers (who take one share each) are—J. B. Thompson, New Cross; J. Wilton, Rathbone; J. R. Barlow, Edgworth; J. P. Rackman, Falcon Glass Works; G. D. Davis, 249, High Holborn; H. M. Smith, 17, Saint Bride-street; E. de Pass, 68, Fleet-street.

**WEST CHESHIRE WATER COMPANY (Limited).**—Capital 200,000*l.*, in shares of 10*l.* To effect an amalgamation of the Wirral Waterworks Company and the West Cheshire Water Company, and to work the united business. The subscribers (who take one share each) are—J. W. Angus, Liverpool; W. Bostock, Oxtun; A. P. Bell, Manchester; T. H. E. Gill, Liverpool; T. Griffiths, Silverdale; E. F. Peel, Rockferry; W. Thompson, Liverpool.

### WATSON BROTHERS MINING CIRCULAR.

WATSON BROTHERS,  
MINEOWNERS, STOCK AND SHAKE DEALERS, &c  
1, ST MICHAEL'S ALLEY, CORNHILL, LONDON

Although the sales of ore at Wheal Crebor have been disappointing, owing to the great fall in the price of copper, yet the mine has never looked so well before as it looks now, and we expect to see the samplings increase to 500 tons before long. In the four months ending Oct. 31 844 tons 10 cwt. of ore realised 3671*l.* 7*s.* 10*d.* The first sale, 408 tons, in August, brought 1977*l.* 9*s.* 11*d.*; 436 tons in October 1893*l.* 17*s.* 11*d.* For the last four months the sale on Dec. 20 of 456 tons realised 1456*l.* 17*s.* 6*d.* The last sale of 436 tons 1437*l.* 4*s.* 6*d.* Thus the last four months realised 2894*l.* 2*s.*, against 3671*l.* 7*s.* 10*d.* for the former four months, or less by 577*l.* 5*s.* 10*d.*

The question, therefore, of the price of metals is an important one, and, in our opinion at least, and we have one or two good reasons for thinking so, the smelters are only buying as it were from "hand to mouth," and any sudden demand must cause a rise in prices both of copper and tin. It is well known that an enormous amount of speculation goes on in the Metal Market, almost as much as on the Stock Exchange, and the price quoted is more often effected by the operations of "bulls" and "bears" than by supply and demand. We think tin may soon rise.

A telegram was received on Saturday from East Blue Hills to the effect that the lode in the bottom of the shaft below the deep adit was worth 20*l.* per fathom, and as promising a lode as can be seen.

From Prince of Wales the agent wrote on Feb. 25:—"I think we have a new lode come in from the north-west in the 90 end west, and it has all the characteristics of a large strong silver lode. I believe it contains silver. We do not know its size yet."

In reply to an outside shareholder, we understand a meeting will shortly be held in East Blue Hills. The tin coming into the shaft, worth 20*l.* per fathom, is very important. This is below the 50 or deep adit, and it may be necessary at once to get a small engine, for though the water at present is very little it may increase as the lode is opened upon. Independent of this shaft the stopes above the 50 are worth 25*l.* per fathom.

Business on the Stock Exchange continues to be very quiet, and prices are mostly lower for the week. Foreign stocks, excepting Russians and Italians, are down; Egyptian Unified have fluctuated between 65 and 66, but there are few changes of any importance. There has been a good deal doing in Mexican Railway stock, which has ranged between 44 and 48.

The Grand Trunk of Canadian traffic return was better than generally expected, and prices are somewhat above the lowest points touched. English railways are dull and lower—North British and Great Northern A being exceptionally higher; the traffic returns were rather disappointing. American railways have fallen away again, and close considerably below last week's prices. There has been a fair business doing in miscellaneous securities, and some heavy fluctuations in gas and water stocks. Consols are firm.

**NEW HOLMBUSH.**—Although from the limited amount of capital at their disposal, the directors have been unable to avoid the delay which has occurred in bringing the property to a dividend-paying state, it is erroneous to say that little has been done at the mine, for at the recent meeting the Chairman (Mr. David Sykes, J.P.) gave details which proved the contrary. He stated that the company commenced operations in May, 1880, and the total returns had been 18,433 tons of mundic, and 2617 tons of coppery mundic, or a total of over 21,050 tons sent to the refinery Works at Greenhill, in addition to a quantity of rich silver-lead, the realisations of value being in 1880, 5786*l.*; in 1881, 14,350*l.*; in 1882, 12,715*l.*; and in 1883, 13,896*l.* For a considerable time at first they worked upon the Holmbush lode, which was richer for mundic than the Flapjack; but recently they have been working upon the latter, which many mining experts believe will prove the champion lode in the mine in depth; and so far as they are able to judge they believe it will be very rich for copper. They have three machine drills in use, and the fourth will soon be running; whilst during last month the production of arsenic reached nearly 80 tons, and the copper sold realised over 260*l.* The present position of the mine will be best judged of from the report of Capt. H. Bennett which brings the particulars down to last Saturday. He says (Feb. 23): "The bottom or 175 fm. level has been reached, and the level is now being cleared in order to commence driving with a boring machine. The 160 fm. level cross-cut is being driven south towards the Flapjack lode by Stephen's rock-drills. The 145 fm. level east on the Flapjack is being driven by Stephen's rock-drills, and at this point there is a very fine lode of arsenical mundic and copper ore worth from 25*l.* to 30*l.* per fathom. A stope in the back of this level—lode worth fully 30*l.* per fathom for copper and arsenic. The 145 fm. level south on the lead lode is being driven by Stephen's rock-drills, where we are expecting every day to meet with

a continuation of the same rich course of silver-lead that was worked upon by former workers in the bottom of the level above. We have about 70 men stopping on the various lodes, and about 50 men on tut-work, 20 trammers and fitters, making a total underground of 140, and on the surface, including the dressing pare, about 60, making total number of hands employed about 200." The sales for 1883 were:—Refined arsenic, 1204½ tons, 10,149*l.*; copper ore, 1373 tons, 3142*l.*; silver-lead, 43½ tons, 605*l.* Total sales, 1883, 13,896*l.*, which is the amount mentioned in the Chairman's speech at the meeting. It is not doubted that the additional capital now to be raised will put the undertaking into a permanently prosperous position.

### SUGGESTIONS FOR GEOLOGISTS—JUSTICE FOR THE INFUSORIA.

SIR,—I should be sorry, indeed, to spoil the little joke of Dr. Philologus Phipp, whose letter appeared in last Saturday's *Mining Journal* under the above heading, were it not that I think that many of your readers unacquainted with zoology may possibly be misled thereby. He says—"Shall we not then equally maintain the rights of the infusorian animalcule to a high organism? Because it is a poor earth-worm must it always be trodden under foot? . . . And the day is at hand when men will dig carefully for the infusorian animalcule, not as a bait for fishes, but to lead him into the way of light and higher developments."

Now, first of all, infusoria are not earth-worms, and the idea of animalcule being used for bait for fishes is immensely amusing. It is not mentioned in "Gulliver's Travels," still it is possible, however, the Lilliputians had eyes sharp enough and hoofs small enough to avail themselves of this microscopical bait.

Infusoria may be described as the highest class of protozoa, and of which there are numerous families, deriving the name from the fact of their being obtainable in infusions of vegetable matter after exposure to the air; they are exceedingly minute, and have often been mistaken for the embryonic germs of other species; they have rudimentary digestive organs, but have not been found in a fossil state. Protozoa is the very lowest form of animal life, and includes creatures which appear to form a kind between the animal and vegetable world, reproduction being effected by budding or parting of the older substance; they may consist of a simple cell or a number of them, each on division having an independent life. Protozoa has been divided as follows—infusoria (monads, volvoxes, vorticella), Porifera (sponges), rhizopoda (ameba, polythalamia, foraminifera),

Preston, Feb. 27.

F. K.

**GULCHER ELECTRIC LIGHT AND POWER COMPANY.**—The simplicity and excellence of the Gulcher arc-lamp has frequently been affirmed in the *Mining Journal* from the time the company was started, and it is satisfactory to find that so large a proportion of the heavy load upon the capital has been removed that the enterprise has a fair chance of establishing itself as a profitable undertaking. At the meeting on Wednesday the Chairman (Mr. Daniel de Castro) stated that the investigation committee had obtained from the promoters of the company a surrender of 70,000*l.*, part of the 100,000*l.* purchase money which was paid for the patents, and they had also obtained, in consequence of that, a further voluntary surrender by Messrs. Crookes, Gulcher, and Groth, of 19,050*l.*, so that 89,050*l.* of the purchase money had been taken off. The results of the labours of the finance committee had been shortly this—they had reduced the rent of the premises of the company by 200*l.*; they had induced their consulting electrician to postpone the annual fee to which he was entitled for five years, until the payment of a dividend of 5 per cent. to the shareholders; and they had introduced other economies by which a net saving of 1200*l.* a-year would be effected, notwithstanding the fact that they had gone to the expense of establishing a City office, from which, however, they hoped to obtain many advantages. Messrs. Ransome had also been induced to cancel the contract which had been made with them, by which they were to receive a commission of 4 per cent., which on a turnover of 50,000*l.*—the smallest they could exist upon and hope to pay a dividend—would save 2000*l.* a-year. Messrs. Ransome had given up this contract for a couple of installations, which would not cost the company 500*l.*. To pay a dividend of 5 per cent. on the reduced capital of the company would take less than 5000*l.*, whereas a similar dividend under the old circumstances would have required 15,000*l.* He would not go into full details respecting the 30 or 40 installations which had been carried out (or which were in process of being carried out) in the past six months; three or four of them would show the character of the business being done. They had obtained the lighting of Lyttelton Harbour, New Zealand, in succession to the Brush Company. In London they were lighting the largest oil mills in Bermondsey, partly by arc and partly by incandescent lamps; and they had already received requests to tender for the lighting of other oil mills. They hoped that the installation at Birkenhead—a very large and important one—would produce similar results. The most important of the "lay" installations, however, was perhaps that at the Crystal Palace. They had already in progress there an installation of 75,000 candle-power arc lamps. That would be the largest arc-lamp installation in the world, and it was based on figures which, he thought, would not only produce a profit directly, but must, having regard to the fact that there was to be an international exhibition at the Palace, save them many other advertisement, if the work were only properly done. They were one of two companies which, after their systems had been examined, were allowed to tender for the lighting of a portion of the City of London. They had, however, declined to entertain this work for the present; but if they became stronger they might go in for it in the future. They had now before them four or five tenders for lighting ships which he believed they would obtain, besides those being tried on the Vernon and the Minotaur.

**SCHWAB'S GULY (Diamond).**—The announcement of their ninth quarterly dividend at the rate of 20 per cent. per annum is reported to have caused an active enquiry for these shares, as at this price—10 to 10½—they carry the quarter's dividend. The market has the appearance of a coming rise, as the valuable discoveries of three large diamonds must still further increase the next quarter's dividend. The shares are principally held by local people at the Cape, which is a strong recommendation in their favour, but now that the enquiry has set in on this market dealers anticipate good business in them, as a London transfer office has been opened to facilitate transactions. The Kimberley Daily Independent of Jan. 26 says:—"Yesterday morning the Schwab's Guly Company found another beautiful off-coloured stone, weighing 109½ carats. This makes the third large and splendid stone found within a fortnight in this company's ground, the others weighing respectively 109½ and 124 carats. This refers to an article in the same newspaper a few days previously to the effect that the declaration of a 5 per cent. dividend for the last quarter of 1883, by this prosperous company, brings the total amount repaid to shareholders since the formation of the company up to 57,890*l.*, 22 per cent. on the old capital of 94,000*l.*, amounting to 20,680*l.*, and 30½ on the increased capital of 122,000*l.*, amounting to 37,210*l.* The company started in March, 1881, with a capital of 94,000*l.*, and in November of the same year declared a dividend of 6 per cent. Since then there have been an uninterrupted series of quarterly dividends. The dividends in 1882 were—Jan., 6 per cent.; April, 6 per cent.; July, 4 per cent. The capital was then increased to 122,000*l.*, and Nov., 5 per cent. In 1883 the dividends were—Jan., 4½ per cent.; April, 5 per cent.; July, 6 per cent.; Oct. 5 per cent.; and in Jan., 1884, a further 5 per cent. was declared.

**FATAL SLATE QUARRY ACCIDENT.**—On Wednesday morning, at 11 o'clock, an accident almost without parallel, both in its nature and in the extent of its fatal results, occurred at the South Dorothea Slate Quarry, Nantlle, Carnarvonshire. Ten men were sheltering in a strong building whilst a shot was being fired when, instead of the powder doing the full work it was intended for, it simply blew one stone weighing about 5 tons to a distance of about 30 yards, when it fell into the building in the midst of the men who had sought refuge there, killing three of them at once and injuring two others so seriously that they died shortly afterwards; wounding also the remaining five.



one of whom is not expected to recover. The accident has cast great gloom over the whole of Nantlle Vale.

#### NEW POTOSI MINING COMPANY.

The subjoined letter has been received to-day from Mr. T. B. Provis, dated Peru, Jan 27. He says:—As Major Scriven is now on his way home he will be in a position to speak on all matters of detail. We have made steady progress at Attwood's shaft in driving the levels mentioned in my last letter. No. 1 is now 31 west of the shaft; the lode is over 4 ft. wide, but the quartz is poor. In another 70 or 80 ft. driving I feel very sanguine that the quality of the quartz will much improve, as we shall be getting the old workings referred to in my former letter. This level is well secured with timber, having put in four sets the last few days.

No. 2 level is now 16 ft. from the shaft; the quartz is very similar to that of No. 1, lode is 4½ ft. wide. We have put in two sets of timber during the last week, also collar for filling the bucket. The pumps are in fair working order. We are using the water drawn from this shaft to supply the mill boilers. The hoisting arrangements here are working most satisfactorily.

Air Shaft: Since my last we have completed the skip-road and started two levels from the bottom of the shaft. The level east on the lode has been driven 8 ft. 6 in.; the lode at present in the end is small, being only 15 in. wide. The level west is driven 8 ft. 6 in.; the lode in the end is more than 2 ft. wide, and is increasing in size as we proceed.—No. 3 Shaft: We have intersected the lode in the bottom cross-cut, but have only been driving on its course a day or two, so cannot tell much about it. To-day there is about 9 in. of good pay-rock in the vein; this will become larger as we continue our level east. We have started a winze from the bottom of the No. 1 level, and it is now 15 ft. deep; the lode is 20 in. wide, producing good rock—in fact, the best quartz ever being raised from this part of the mine. We are now fitting up an old engine (that was used many years ago on our old Chile property) to hoist the quartz from here, hitherto it has been done by windlass and mule, but we have had so much rain of late that the men could not work regularly at the windlass, and the road was too bad for the mule to work. We do not intend cutting down the shaft just yet, preferring to open the lode a little more before incurring this expense. The hoist can be fitted and erected by four men in a week (it will not cost 100. outside labour), we shall then be able to get our quartz at any time.

Chile (New Shaft): We have driven 60 tons of quartz here waiting for the mill. For the present we have stopped this work, having put the men in Attwood's No. 2 level.—Mill: On the afternoon of the 15th we started 10 stamps; this was done to test the engine, plates, &c. The stuff crushed was mostly debris found at surface. We have only cleaned up 43 ozs. of amalgam, or about 17 ozs. of gold from this crushing. This evening I have started 20 stamps, which I hope will be kept constantly at work crushing quartz from the mine. Although the major portion of the rock put through is of very low grade it will assist us somewhat in our working expenses, and we may at any time get on richer. My brother has just completed 14 assays, none of which will yield 1 oz. to the ton. We think it better to mill it, as any day we may get an improvement; indeed, since I have been writing this Capt. Thomas has brought in some stones containing visible gold from No. 2 level at Attwood's, and this is the first time we have seen any gold in the quartz from this level.

Since my last we have boarded the sides of the engine-room, thus preventing as far as possible the dust and grit getting on the bearings from the stone breaker. We have also excavated some ground at the back of the mill; by doing this we can dump 30 tons of quartz more than hitherto. I have given you the exact position of everything as it occurs to me. If we can only get the capital to tide over this rub I feel confident we shall come out all right in the next few months. It must not be forgotten that although a very large amount of money has been sent out from home little or nothing has been done to open the mine. I do not consider anything was done by the former management to prove the lode either vertically or horizontally. We have cut down our expenses at surface as low as possible, and are concentrating all our forces underground. We are buying wood only for the three boilers, what mine timber we require for immediate use we using from old stock.

In conclusion, I will add I am more than ever convinced of the advisability of my sending the first telegram in which I stated it would be folly to abandon as the future was decidedly hopeful. The company would never have been in the present position if the vein had only been partially developed, and that in a miner-like manner.

**DUES ON PROFITS.**—The announcement in the *Mining Journal*, to the effect that the Duke of Buckingham had granted a mining set on the principle of dues on profits only has been very favourably received. This has long been desired, and the admission, having at last been made, has met with much favourable comment. It must ultimately become general—if by no other means, by legislation. It is with pleasure that we state that the present chairman of the Liberal party in West Cornwall, Mr. W. Cole Pendarves, declared, upon being recently appealed to for a remission of dues, that "dues in calling mines were of the past." It is to be fervently trusted that such is the case.—*Western Daily Mercury*.

**PATENT NUT AND BOLT COMPANY.**—At the meeting on Wednesday the Chairman (Mr. J. D. Weston) said that the state of business during the year had not been very animated, but the company had year by year extended its business, and although exposed to increasing competition it had still held its own. The report was much like previous reports, but they were able to recommend a dividend at the rate of 10 per cent., 10,000l. being carried to the reserve fund. The works continued to be maintained in a most efficient state, and they had not for many years past added 1l. to the capital account. The investment fund had up to the present stood at 120,000l. Of that sum 72,781l. was put out at interest, and realised 6l. 2s. per cent., and that yield being added to the profit made by working the remainder in the company's business they obtained four-fifths of the amount which was carried every year to the reserve fund—that was to say, their investments produced annually about 2500l. The directors considered the company to be in a perfectly sound condition, in spite of the competition, keener than ever, to which it was subjected. At one time their colliery was creating a loss, but as the result of closer attention given to its working, and the adoption of every modern method of economising, it was now a prosperous concern, and during the past year they had raised between 50,000 and 60,000 tons of coal more than in 1882. Such was the condition of their works, such their appliances, that they might confidently expose themselves to any competition which they might meet hereafter. The Chairman recognised in warm terms the services of the managing directors, Messrs. Keen and Gries, and of the managers of departments, and asked the shareholders still to repose in the directorate the confidence which they had given them in the past. A rather larger balance than usual would be carried forward this year, and the directors felt that they might now promise definitely that for the future they would pay 5 per cent. every half-year without risk.

**CARNARVONSHIRE COPPER MINES.**—The copper ore obtained from the mines in this county is of high percentage, yielding an average of over 10 per cent. Some of the mines appear to have been very extensively wrought many years ago, the ore being mostly carried down on men's backs from the mountain side. One of the oldest, if not the oldest, is the Drwa-y-Coed Mine, situated on the main road from Penryn to the head of the Nantlle Valley, which has produced 200,000l. worth of copper ore, although only 50 fathoms deep. This mine has been worked without intermission for a century, and is at present being worked on tribute. Adjoining Drwa-y-Coed is the Bymde Dylluan Mine, latterly worked under the title of the Carnarvon Copper Company, which has yielded as much as 20,000l. worth of copper ore in a year. South of these properties is the Dwm Dwyor Mine, which yields argentiferous copper ore, and further south on the western side of the Mael Hebog is the Cwmlefrith Mine, where there are extensive old workings, which appear to have yielded copper ore in large quantities.

**EAST POOL.**—At the meeting on Monday (Mr. G. A. Michell in the chair) the accounts showed a profit on the 12 weeks' working of 5939l. A dividend of 18s. per share was declared, and 179l. was carried to the reserve fund, which now amounts to 1373l. The resolution of the committee allowing Carn Brea 50l. per month for a year was agreed to. Mr. Clinton remarked that the mine had really done better this time than last. Some outside people urged that their reserves were being taken away.—Capt. Bishop observed that a similar complaint had been made by some persons for the past three years. It was also said that they were not laying sufficient ground open. A glance at the plan would disprove this statement. They asked where the increase in the returns of tin came from. He would point to the 150 on the section of the great lode. This stop was very rich, it had been so all the quarter, and they hoped it was dipping with the granite, which was dipping west. The valuation, 50l. per fathom, was against 30l. last time, and they had an end there that day which was very good indeed. In fact, they did not know how long the lode was as yet, as they had not reached the north wall. He thought the average produce had increased.—The Purser said it had increased from 2 qrs. 18s. to 2 qrs. 23 lbs. Had not more tin been discovered than had been taken away?—Capt. Bishop could not see through the ground, but so far as the cubic contents of the ground was concerned he replied in the affirmative.

**GOLD AND SILVER.**—Messrs. FIKLEY and ABELL (Feb. 28) write: The operations in gold at the Bank have been unimportant this week; comprising only an influx of 5000l. from Sydney, and a withdrawal of 35,000l. from South America. The only orders for abroad have been for India, and these have been quite met by the arrivals. The Iberia has brought 8500l. from Central America; the Trojan 10,000l. from the Cape; the Lafayette 63,000l. from Central America; the Elbe 53,410l. from the West Indies = 139,960l. After the dispatch of our last further slight improvement in silver bars took place, and 5134d. was paid for a few small parcels. This small rise of 1/4d. was soon lost, and the silver by the Buffon was placed at 5134d.; that by the Flaxmann and the Cuvier at 5134d. The Indian exchanges have somewhat declined, and it is doubtful whether this price will be obtainable for the quantity now on the market from the West Indies. We have received since our last 44,240l. from New York; 153,100l. from India. The P. and O. steamers have taken 104,500l., and a considerable quantity of florins have been sent from Venice. The quotations for bullion are:—Bar gold, fine, 77s. 9d. per oz. standard; bar gold, containing 20 dwts. silver, 77s. 10½d. per oz. standard; Spanish doubloons, 73s. 9½d. to 73s. 10d. per oz.; South American doubloons, 73s. 9½d. per oz.; United States gold coin, 76s. 3½d. per oz. Bar silver, fine,

5134d. per oz. standard, last price, nominal; bar silver, containing 5 grs. of gold, 5134d. per oz. standard; cake silver, 55½d. per oz.; Mexican dollars, 45½d. per oz. last price, nominal; quicksilver, 5s. 5d. Discount, 3 per cent.

#### THE LAW AND PRACTICE OF PATENTS FOR INVENTIONS.

In connection with patent law literature the name of Mr. Clement Higgins is already favourably known to the readers of the *Mining Journal* from the notices already published of his admirable Digest of Reported Patent Cases; and the volume which he has now issued—*A Concise Treatise on the Law and Practice of Patents for Inventions*. By CLEMENT HIGGINS, Barrister-at-Law. London: William Clowes and Sons, Fleet-street—is by no means calculated to diminish his reputation as an authority upon the subject of which he treats. It is a carefully annotated edition of the Patents, Designs, and Trade Marks Act which came into operation at the beginning of the year with such ample references to cases that the reader, whether a lawyer, patent agent, or inventor, will have little difficulty in ascertaining whether a given claim for an invention is likely to be or not to be recognised by the Courts as justifying the support of a patent. The notes are very copious, whilst they are given in a clear and readable style that even the non-professional man can, by passing over the references to cases which are enclosed in parentheses, find much that will interest and instruct him. Thus, taking one of the notes to the fourth section, which it will be remembered relates to the application for the patent, Mr. Higgins explains that the person who invents a new manufacture, and obtains a patent for it, is the true and first inventor within the statute, notwithstanding that somebody else has invented it before, but had not published it within the realm. If several persons simultaneously discover the same thing, the party first communicating it to the public under the protection of letters patent becomes the legal inventor. A man who discovers the principle of a new manufacture, but employs others to carry it out in detail, is still the true and first inventor within the statute.

When Mr. Higgins expresses an opinion on a legal point arising out of the Act, his view may generally be adopted; but upon mere questions of popular opinion many will frequently disagree with him—for example, after explaining that the words "whether a British subject or not" appearing in this section now removes all restrictions of nationality. This, he says, "will probably in time do away with the practice, now usually followed, of foreign inventors taking out British patents in the name of their patent agent, and subsequently taking an assignment from them." Of course, experience alone can prove whether this view is or is not correct; but, as a matter of fact, the foreign inventor secures many advantages under the present system, especially when such foreign inventor is desirous of selling his patent rights to a British manufacturer or introducer. A purchaser naturally deals with one of his own nationality with far greater confidence than with one whose language and business ideas are perhaps widely different; and it may safely be said that many inventors have entirely lost the benefit that would have accrued to them in a country other than their own owing to the delay and annoyance which has been experienced in conducting the negotiations. It is, of course, assumed that Mr. Higgins intends to imply that the foreign inventor will dispense with the services of an agent altogether, for if he employs an agent, the fact of the person employed not being a patent agent matters nothing except that, as a rule, a patent agent will be better able to watch his clients' interest in the matter of an invention better than any other. Throughout the volume Mr. Higgins's illustrations of the practice bearing upon the several sections are clear, concise, and to the point; and as the table of cases and general index are prepared with care and judgment, the work may fairly be commended as useful and reliable.

**SOUTH PENSTRUTHAL.**—Prospects here go on improving. The lode has been cut by a short cross-cut from Walton's engine-shaft, which, after passing through 16 ft. of highly-mineralised capels, found the copper-bearing lode 6 ft. wide; described as the best lode since starting the mine, containing quartz, fluor-spar, chlorite, prair, and copper of rich quality. The agent is of opinion that it is the top of the great bunch of copper ore which from the starting of the mine by the present company was expected to be met with under the mundic. A box with specimens of the ore can be seen at the London office.

**OLD SHEPHERDS.**—The shares in this enterprise are quoted 18s. 9d. to 20s., and it is reported that there is a decidedly firm market, every share offered being readily taken by investors both here and in Cornwall. The feeling is said to be so strong that 40s. would not stop the upward movement, as the hard appearance of the market is evidently the forerunner of a strong upward movement on the first news from the mine intimating that bearers and cistern have been fixed, as they will then be able to slip right away to the 110. Several good stones of lead have been received at the company's office taken from the 102, where the miners still continue to make good wages.

**LEVANT.**—At the meeting on Tuesday (Mr. White in the chair) the accounts showed a debit balance of 324l. Capt. Newton, Trembath, and Nankervis reported that on the old lode they had driven 13 fms. in the 273 cross-cut towards the old lode since the last meeting, making 25 fms. in all driven, and they expected to meet with the lode in about 2 fms. further driving. Concluding a favourable report the agents said that the mine for the past 16 weeks had opened out to their expectations, and the returns of tin and copper would be much the same for the next 16 weeks. The profits would depend on the prices of the minerals.

**WHEAL COATES.**—The returns from this mine are increasing, and will, it is thought, increase between this and the next meeting, which the shareholders have decided to hold in Cornwall. It is to be hoped that the mine will have a little more of the prominence due to it in regard to its situation and general surroundings. It is true that at present the mine is a speculation, but it is regarded as one which may yield a large return to the investor.

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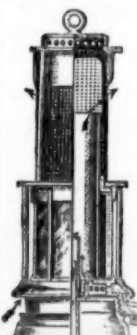
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#### THE NORTHERN LEAD MINING COMPANY (LIMITED).

ALL PERSONS claiming to be CREDITORS of the ABOVE COMPANY are required, on or before the 15th March prox., to SEND IN their NAMES and ADDRESSES and PARTICULARS of their CLAIMS, addressed to the Liquidator of the Northern Lead Mining Company (Limited), in liquidation, 8, Austin Friars, London; or, in default thereof, will be EXCLUDED from the BENEFIT of any DISTRIBUTION made before such debts are proved. WILLIAM EDWARDS, Liquidator.  
Dated the 28th day of February, 1884.

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ONE 50 inch and ONE 40 inch PUMPING ENGINES, with BOILERS and FITTINGS.  
ONE 22 inch ROTARY ENGINE.  
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**GOLD PLANT.**—Engines, Boilers, Water Wheels, Stone Breakers, Batteries of Stamps, Percussion Tables, Pans, Retorts, &c., complete.  
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(Signed) A. LICIONI, President.  
(Signed) VICTOR T. GRILLET, Treasurer.

**TOLIMA MINING COMPANY (LIMITED).**  
The Board of Directors hereby give notice that they have THIS DAY DECLARED a PREFERENCE DIVIDEND on the A capital of the company for the year ending the 31st May, 1881, at the rate of TEN PER CENT. PER ANNUM, payable on the 29th March next, and they further give notice that the Transfer Books will be closed from the 25th to the 30th of the same, both inclusive.  
By Order, WM. W. HOLMES, Sec.  
35, Finsbury-circus, London, E.C., 29th February, 1884.

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The Subscriber is desirous of opening communication with some party in England for the purpose of organising the above company. One thousand acres of red hematite ore not far from the line of the C. P. R.  
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Gives reliable information about Hungarian Mines and Minerals, particularly about Gold and Silver Mines in Transylvania.

LEAD ORES.				
Date.	Mines.	Tons.	Price per ton.	Purchasers.
Feb. 26—Isle of Man	.....	100	£ 9 13 6	Adam Eytton.
28—Van	.....	125	8 11 0	Weston, Son, and Co.
—ditto	.....	25	8 11 0	Walker, Parker, & Co.
BLENDE.				
Date.	Mines.	Tons.	Price per ton.	Purchasers.
Feb. 26—Cwmystwyth	.....	50	£ 3 6 0	Pascoe, Grenfell, &c.
—Van	.....	100	2 13 3	J. F. Kimmel.



According to the latest official returns the Bullion Mine produced during the three months, commencing the 1st September last, when stoping was begun, up to the 30th November, as will be seen by the accompanying returns of sales of ore from the mine, 1485 tons (2000 lbs. to the ton), which realised nett \$199,430 08c., or £41,116.

## THE BULLION MINING COMPANY (LIMITED).

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SECRETARY—JOHN WALSH, Esq.

### PROSPECTUS.

This company is formed to purchase and work the valuable silver mining property known as the Bullion Mine, with all existing plant and machinery, situated near Bullion City, in Alturas County, in the Territory of Idaho, U.S.A.

The mine is situated within 7 miles of the railroad station at Hailey, on Wood river, which connects it with all parts of the United States, as a good wagon road runs direct from the property to the railroad station.

The experts who have examined the property report that the operations have hitherto been confined to developing the mine, which is now yielding profitable returns, and where the ore in sight is variously estimated at from a minimum of £182,000 to a maximum of £400,000 in net value.

These experts are Messrs. Percyvale Taylor and N. C. Morcom (of John Taylor and Sons), Professor W. L. Jenney, E.M., G. L. Havens, T. J. Cooper, and George R. Clarke, all of whose reports can be seen at the company's office. These reports are dated between Nov. '25, 1882, and Feb. 8, 1883.

The ore is reported by above experts to be a fine-grained galena, very rich in lead and silver, and the ore taken out in the necessary development yielded \$125,899 25c. (£25,958), but systematic stoping was not begun until 1st September last. Between that date and November 30th 1485 tons of ore were sold to the Philadelphia Mining and Smelting Company and the Omaha Smelting and Reduction Company, and latest official account of sales (as per accompanying statement) show the profits to be \$199,430 08c. (£41,116), after deducting all expenses, including mining, transportation, and smelting. For the purpose of calculation, the pound sterling is estimated at \$4.85, the average rate of exchange.

The mine has been opened up to a depth of over 300 ft., and the latest reports give the output at about 15 tons per day as a going concern, and all ore raised after Jan. 1, 1884, will be for and on account of the company, and will be passed to its credit.

The workings on the adjoining chute in the Mayflower Mine have, according to latest advices already produced over £100,000, and are within 3 ft. of the Bullion boundary line, with the entire ore body pitching into the Bullion property, thus verifying the anticipations of Messrs. John Taylor and Sons' experts, who say:—"From all appearances, one of the chutes now being worked in the Mayflower with great profit will cross the line into the Bullion ground at or about the fourth level. This is an important point as regards the future prospects of the mine."

From the pitch of the various ore chutes along the line of the lode, it is confidently anticipated that the chutes now being worked with great profit in the Mayflower and Jay Gould Mines, will at depth enter the Bullion.

The ore being so high in lead is sold direct to the smelters by the car load, and can be mined and delivered on the cars at Hailey at \$9 per ton, and concentrating works have been erected to treat any second-class ore which may be raised. If, in the future, smelting works should be considered advisable, they can be erected at little cost; but at present this is not deemed necessary, as the quality of the ore is such that it is competed for by the smelters of Omaha, Salt Lake, and others in the vicinity of the mine.

It will be seen from the foregoing that practically but little working capital is required, as, with a small force of men, 3000 tons of ore can be mined and shipped per annum, and taking the average value of the ore in accordance with the accompanying sales, the net annual revenue would be considerably over £75,000.

The vendors, who are the promoters of the company, have agreed to sell the property to the company for £137,000 in cash, and 73,000 shares fully paid up, and all the expenses incurred in the formation of the company, up to and including allotment, will be paid by them.

The only contract entered into is one dated the 17th day of January, 1884, between James S. Leeds, as attorney for Howard Oviatt, and Buna Newton, M.D., of the one part, and John Walsh, as trustee on behalf of the company, of the other part. Copies of this contract, with reports of the various experts, and Memorandum and Articles of Association, may be seen at the company's office. The title will be verified to the satisfaction of the company's solicitors before any payment will be made to the vendors.

Application will be made in due course for an official quotation of the shares on the London Stock Exchange.

In case of no allotment being made the deposits will be returned to subscribers without deduction.

Prospectuses and Forms of Application for Shares can be obtained from the Bankers, Solicitors, or at the Office of the Company.

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Capt. Mutton, on the works, will show the same with samples of clay and a plan of the sett may be seen, and any further information obtained on application to the Auctioneers, at their offices in St. Austell and Bodmin; or to Messrs. T. and H. R. GILL, Solicitors, 63, Ludgate-hill, London, E.C.; or to Messrs. OSCILL, BRAY, and PETER, Solicitors, Holsworthy, Devon.

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United States, giving results never before obtained as regards con-  
tinuous running, economy of fuel grade and quality of bullion  
produced.

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brick or stone work, thus saving great expense and loss of time in  
construction.

Complete smelting plants made to order, with all the improve-  
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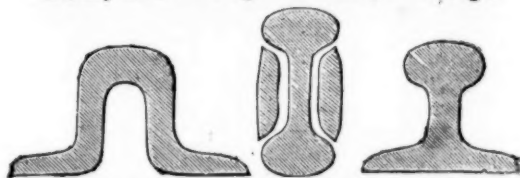
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J. JACKSON, Manager



## THE MINING SHARE LIST.

## BRITISH DIVIDEND MINES.

Shares.	Paid.	Last wk.	Clos. pr.	Total divs.	Per sh.	Last pd.
3200 Blue Hills, t. c. St. Agnes	4 15 6	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
6000 Carn Brea, t. c. Illogan	12 12 11	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
8000 Craiggaich, t. c. Cardigan	5 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
12340 Devon Gr. Consols, t. c. Tavistock	1 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
4700 Dolcoath, t. c. Camborne	10 14 10	6 1/2	6 1/2	0 0 0	0 0 0	0 0 0
6400 East Pool, t. c. Illogan	0 9 9	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
12000 Great Holway, t. c. Flintshire	5 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
15000 Great Laxey, t. c. Isle of Man	4 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
8400 Green Hurth, t. c. Durham	0 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
8000 Gunnsdale, t. c. Illogan	0 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
2800 Isle of Man, t. c. Isle of Man	25 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
6000 Killfret, t. c. Chacewater	4 3 6	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
8000 Leadhills, t. c. Lanarkshire	6 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
4000 Llanfair, t. c. Cardiganshire	18 15 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
10000 Mellanear, t. c. Hayle	2 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
9000 Minera Mining Co., t. c. Wrexham	5 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
20000 Mining Co. of Ireland, t. c. c.	7 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
11823 North Hendre, t. c. Wales	2 10 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
8146 Ditto	1 5 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
2000 North Levant, t. c. St. Just	13 6 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
4760 Penhall, t. c. St. Agnes	4 5 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
12000 Phoenix United, t. c. Linkinhorne	8 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
12000 Roman Gravel, t. c. Salop	7 10 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
6123 South Condurrow, t. c. Camborne	7 5 7	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
8000 South Darro, t. c. Cardigan	1 16 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
8000 Tincroft, t. c. Pool, Illogan	13 12 6	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
15000 Van, t. c. Llanidloes	4 5 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
15000 West Holway, t. c. Flintshire	1 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
6000 West Raset, t. c. Illogan	7 10 4	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
6000 West Killy, t. c. St. Agnes	0 12 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
12000 Wheel Crebor, t. c. Tavistock	2 4 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
12000 Wheel Eliza Consols, t. c. Austell	1 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
6000 Wheel Killy, t. c. St. Agnes	5 12 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
4254 Wheel Peavor, t. c. Redruth	13 1 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0

## FOREIGN DIVIDEND MINES.

Shares.	Paid.	Last wk.	Clos. pr.	Total divs.	Per sh.	Last pd.
35500 Alamillos, t. Spain	2 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
130000 Almada and Tinto Consol., t. Spain	1 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
20000 Australian, t. South Australia	7 7 6	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
15000 Birdseye Creek, t. California	4 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
30000 Bratsberg, t. Norway	2 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
130000 California, t. California	1 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
20000 Cape Copper Mining, t. South Africa	1 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
65000 Colorado United, t. Colorado	5 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
60000 Colopio, t. Chili (24 shares)	3 10 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
70000 English & Australian, t. c. B. Aust.	2 10 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
2000 Eng. Aus., t. Vict. (20000 o.)	1 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
25000 Fortuna, t. Spain	2 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
72000 Frontino & Bolivia, t. New Gran.	2 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
270000 Henriett, t. Leadville, Colorado	1 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
200000 La Plata, t. Leadville	2 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
5000 Linars, t. Spain	3 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
20000 Marbella Iron Ore, t. Spain	10 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
185164 Mason & Barry, t. Portugal	10 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
80000 Quebrada, t. Land & Cop. Venezuela	10 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
50000 Panguito, t. Chili	10 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
25000 Pitangui, t. Brazil (in 6000 sh. pd.)	10 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
1450 Pontgault, t. France	20 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
100000 Port Phillip, t. Victoria (24 shares)	1 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
50000 Rara Fortuna, t. Argent. Republic	1 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
54000 Richmond Consol., t. Nevada	5 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
24532 Rio Tinto, t. Mortgage Bds. Huelva	100 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
325000 Ditto, shares	0 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
40000 Santa Barbara, t. Chile	10 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
12000 Schwabe Gully, t. Kimberley	10 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
120000 Scottish-Australian Mining Co., t.	1 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
80000 Ditto, New	0 10 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
22500 Sierra Buttes, t. California	2 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
40625 Ditto, Plumas Eureka	2 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
253000 St. John del Rey, t. (25 Stock and multiple deal in)	65 75	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
160000 Tambora, t. c. Wynaad	1 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
625000 Tharwa, t. c. Wynaad (50000 sh. pd.)	2 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
50000 Tolima, t. c. Colombia (A & B shares)	5 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
25000 Victoria, t. c. Australia	1 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
100000 Victorine (Nevada, U.S.) Deb. Bds.	1 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
15000 Western Andes, t. Colombia	5 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
2100 W. Prussian (5500 pref. sh. £10 pd.)	10 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0
64800 Yorke Pen., t. South Aust. Pref.	1 0 0	3 1/2	3 1/2	0 0 0	0 0 0	0 0 0

Have made calls since last dividend was paid.

## NON-DIVIDEND BRITISH MINES.

Shares.	Paid.	Last wk.	Clos. pr.
25000 Aberduna, t. Denbigh	1 10 0	3 1/2	3 1/2
12000 Anderton, t. c. Devonshire	1 2 0	3 1/2	3 1/2
12000 Asheton, t. Carnarvonshire	5 0 0	3 1/2	3 1/2
12000 Bedford Unit, t. c. Tavis (21 sh.)	0 14 0	3 1/2	3 1/2
30000 Bodidris, t. c. Denbighshire	1 0 0	3 1/2	3 1/2
10000 Brada, t. c. Isle of Man	1 0 0	3 1/2	3 1/2
30000 British Manganese Company	1 0 0	3 1/2	3 1/2
20000 Central Fodds, t. c. Denbighshire	1 0 0	3 1/2	3 1/2
20000 Bwch United, t. c. Cardigan	1 0 0	3 1/2	3 1/2
12000 Collicombe Consols, t. c. Llanrwst	2 0 0	3 1/2	3 1/2
50000 Carn Camborne, t. c. Camborne	1 0 0	3 1/2	3 1/2
37500 Carnarvonshire Cons., t. Llanrwst	2 0 0	3 1/2	3 1/2
6400 Cashwell, t. c. Cumberland	2 19 0	3 1/2	3 1/2
4200 Cathedral, t. c. Gwynedd	1 8 0	3 1/2	3 1/2
12000 Central Fodds, t. c. Isle of Man	1 17 6	3 1/2	3 1/2
25000 Coal-y-Fedw, t. c. Builth	1 17 6	3 1/2	3 1/2
2450 Cook's Kitchen, t. c. Illogan	33 14 0	3 1/2	3 1/2
10000 Cornwall Great Cons. (4500 issued)	1 0 0	3 1/2	3 1/2
30000 Creiglog, t. c. Denbighshire	0 17 0	3 1/2	3 1/2
6400 Crook Burn, t. c. Cumberland	0 17 0	3 1/2	3 1/2
4723 Eresby Mountain, t. c. Llanrwst	0 10 0	3 1/2	3 1/2
42000 Devon Consols, t. c. Tavistock	4 0 0	3 1/2	3 1/2
60000 Devon Frieson, t. c. Tavistock	1 17 0	3 1/2	3 1/2
12000 Devon Great United, t. c. Tavistock	1 17 0	3 1/2	3 1/2
50000 Drakeville, t. c. Calstock	0 15 0	3 1/2	3 1/2
50000 Duchy Per, t. c. Cornwall	1 0 0	3 1/2	3 1/2
12000 East Blue Hills, t. c. St. Agnes	0 5 0	3 1/2	3 1/2
6000 East Ballowack, t. c. St. Just	1 0 0	3 1/2	3 1/2
514 East Baradon, t. c. Cleer	4 19 0	3 1/2	3 1/2
4200 East Chiverton, t. c. Penryn	10 17 0	3 1/2	3 1/2
30000 E. Craven Moor, t. c. Pateley Bridge	1 0 0	3 1/2	3 1/2
15000 East Devon Cons., t. c. Buckfastleigh	2 0 0	3 1/2	3 1/2
20000 East Long Rake, t. c. Wales	1 0 0	3 1/2	3 1/2
25500 East Roman Gravel, t. c. Salop	1 0 0	3 1/2	3 1/2
18000 East Van, t. c. Llanidloes	5 0 0	3 1/2	3 1/2
2948 East Wheel Lovell, t. Helston	18 18 6	3 1/2	3 1/2
12000 East Wheel Rose, t. c. Newlyn East	1 0 0	3 1/2	3 1/2
25000 Ecton, t. c. Wotton	2 0 0	3 1/2	3 1/2
12500 Frongoch, t. c. Cardigan (1000 sh. iss.)	2 0 0	3 1/2	3 1/2
12000 Ganton, t. c. Tavistock	2 0 0	3 1/2	3 1/2
40000 Glasg. Car. (30000 sh. £1 pd., 10000 sh. pd.)	1 0 0	3 1/2	3 1/2
30000 Gobbett, t. c. Devon	1 0 0	3 1/2	3 1/2
10000 Gogin, t. c. Cardiganshire	1 0 0	3 1/2	3 1/2
25000 Goodfere, t. c. Cleer	1 0 0	3 1/2	3 1/2
8500 Gorseid and Merilyn Cons., t. Flint.	2 10 0	3 1/2	3 1/2
20000 Great Dyller, t. c. Wotton	1 0 0	3 1/2	3 1/2
6000 Great West Chiverton, t. c. St. Agnes	0 6 0	3 1/2	3 1/2
20000 Grogwinion, t. c. Cardigan	2 0 0	3 1/2	3 1/2
10000 Gwyn-y-Mynydd, t. c. Flint (pref.)	4 0 0	3 1/2	3 1/2
7000 Gwydyr Amal, t. c. Llanidloes	1 0 0	3 1/2	3 1/2
8400 Hardshins, t. c. Westmore (100 sh.)	0 2 0	3 1/2	3 1/2
12000 Harrodsfoot, t. c. near Liskeard	1 8 0	3 1/2	3 1/2
15000 Hingston Down, t. c. Llanidloes	0 13 0	3 1/2	3 1/2
50000 Holway Consols, t. c. Flintshire	1 0 0	3 1/2	3 1/2
25000 Kit Hill Gr. Cons., t. c. Wotton (24 sh.)	1 2 0	3 1/2	3 1/2
15000 Lady Ann, t. c. Llanidloes	1 0 0	3 1/2	3 1/2
25000 Langford, t. c. Llanidloes	0 10 0	3 1/2	3 1/2
10000 Llandegla, t. c. Wales	1 0 0	3 1/2	3 1/2
5120 Lovell, t. c. Wotton	0 16 0	3 1/2	3 1/2
9000 Marke Valley, t. c. Linkinhorne	7 11 0	3 1/2	3 1/2
6000 Medlyn Moor, t. c. Wotton	3 15 0	3 1/2	3 1/2
8000 Mona, t. c. Anglesea	5 0 0	3 1/2	3 1/2
20000 Mona Consols, t. c. Anglesea	1 0 0	3 1/2	3 1/2
10000 Monkstoun, t. c. Wotton	2 0 0	3 1/2	3 1/2
20000 Mostyn Consols, t. c. Flint	1 0 0	3 1/2	3 1/2
20000 Morfa Du, t. c. St. Agnes	1 0 0	3 1/2	3 1/2
80000 Mounts Bay, t. c. Breage	1 0 0	3 1/2	3 1/2
514 Mount Carbis, t. c. Redruth	1 15 0	3 1/2	3 1/2
12000 New Caradon, t. c. Cleer	3 13 0	3 1/2	3 1/2
2400 New Cook's Kitchen, t. c. Illogan	9 13 0	3 1/2	3 1/2
6000 New Dolcoath, t. c. Camborne	3 0 0	3 1/2	3 1/2
10000 New Holmbush, t. c. c. Callington	3 0 0	3 1/2	3 1/2
6000 New Killy, t. c. St. Agnes	1 2 0	3 1/2	3 1/2
15000 New Redmoor, t. c. Callington	1 5 0	3 1/2	3 1/2
17500 New Terras, t. c. St. Austell	1 0 0	3 1/2	3 1/2
6000 New Truro, t. c. Lelant	8 0 0	3 1/2	3 1/2
12000 New Truro, t. c. Lelant	7 0 0	3 1/2	3 1/2
50000 New Van Cons., t. c. Glyn	7 0 0	3 1/2	3 1/2
12000 New West Caradon, t. c. Liskeard	0 6 0	3 1/2	3 1/2
30000 New Wheel Peavor, t. c. Redruth	0 10 0	3 1/2	3 1/2
12000 North Blue Hills, t. c. St. Agnes	0 2 0	3 1/2	3 1/2
5328 North Bury, t. c. Scourie	1 19 8	3 1/2	3 1/2
10000 N. D'Essey Mount, t. c. Llanidloes	1 0 0	3 1/2	3 1/2
25000 North Grogwinion, t. c. Cardiganshire	1 0 0	3 1/2	3 1/2
8400 North Green Hurth, t. c. (3400 sh. pd.)	1 0 0	3 1/2	3 1/2
25000 North Grogwinion, t. c. Cardiganshire	1 0 0	3 1/2	3 1/2
12000 North Redmoor, t. c. Liskeard	0 13 6	3 1/2	3 1/2

## NON-DIVIDEND MINES—continued.

Shares.	Paid.	Last wk.	Clos. pr.
50000 North Molton, t. c. Devon	1 0 0	3 1/2	3 1/2
6000 North Penstruthal, t. c. Gwynedd	3 4 6	3 1/2	3 1/2
2936 North Trekerby, t. c. St. Agnes	1 0 0	3 1/2	3 1/2
50000 Oldham, t. c. Durham	8 17 10	—	—
5000 Old Collyer, t. c. Cornwall	1 0 0	—	—
4000 Old Shepherdie Col., Cornwall	1 0 0	—	—
40000 Owen Vean & Tregur, t. c. Marazion	1 0 0	1 1/2	1 1/2
45000 Parys Corporation, t. c. Anglesea	1 0 0	3 1/2	3 1/2
7500 Pateley Bridge, t. Yorkshire	1 0 0	—	—
5000 Pedn-an-drea, t. Redruth	4 7 0	—	—
5000 Pennant, t. Ser. North Wales	5 0 0	5 1/2	5 1/2
20000 Penryn, t. c. Carmarthenshire	1 0 0	—	—
15000 Penryn, t. c. Carmarthenshire	1 0 0	—	—
15000 Perran Consols.	1 0 0	3 1/2	3 1/2
12000 Perran Wheal Alfred, t. c.	0 2 6	—	—
10000 Polberro, t. St. Agnes	0 2 0	1 1/2	1 1/2
6000 Polcubro, t. Crown	0 16 6	2 1/2	2 1/2
4516 Polrose, t. Crown	1 12 0	3 1/2	3 1/2
10000 Port Nigel Byn, t. c. Carnar.	0 15 0	—	—
12000 Port Wick, t. c. (nla. 100 p. 10 p. c.)	1 0 0	—	—
12000 Prince of Wales, t. c. Calstock	0 15 0	3 1/2	3 1/2
30000 Russell United, t. c. Tavistock	0 15 0	3 1/2	3 1/2
30000 Silver Hill, t. Callington	1 0 0	—	—
50000 Sinclair, t. c. Whitford	1 0 0	1 1/2	1 1/2
40000 Sorridge, t. c. Horrabridge	1 0 0	3 1/2	3 1/2
50000 South Cardon, t. c. St. Cleer	1 0 0	3 1/2	3 1/2
6000 South Cardon, t. c. Redruth	0 10 0	1 1/2	1 1/2
42000 South Croft, t. c. Illogan	1 0 0	3 1/2	3 1/2
30000 South Dolcoath, t. c. Illogan	1 0 0	3 1/2	3 1/2
6000 South Kiddy, t. St. Agnes	0 10 0	3 1/2	3 1/2
6000 South Penstruthal, t. c. Gwynedd	3 10 0	3 1/2	3 1/2
30000 So. Phoenix Caradon, t. c. Linkinh.	1 0 0	1 1/2	1 1/2
6000 South Polcarne, t. c. Camborne	5 11 6	—	—
2043 South Wheal Crofty, t. Illogan	5 19 6	2 1/2	2 1/2
40000 South Wheal Francis, t. Illogan	9 14 4	5 1/2	5 1/2
40000 Tamar, t. c. Boarstall	1 0 0	—	—
110000 Tankerville Gt. Consol.	1 0 0	1 1/2	1 1/2
12000 Trebarth Lemanne, t. Northill	0 6 3	2 1/2	2 1/2
6000 Tregembo, t. c. Cornwall	4 0 0	3 1/2	3 1/2
50000 Tregreontes and Old Polgooth Con.	1 0 0	3 1/2	3 1/2
100000 Tresavean, t. c. Gwynedd	1 0 0	3 1/2	3 1/2
60000 Frevarr United, t. c. Cornwall	1 0 0	3 1/2	3 1/2
10000 Trevelance, t. St. Agnes	0 5 0	2 1/2	2 1/2
10000 Vaughan, t. c. Cardiganshire	10 0 0	—	—
50000 Westerdale, t. Northumber. (42)	1 0 0	1 1/2	1 1/2
12000 West Ashton, t. Carnarvon	1 0 0	3 1/2	3 1/2
12000 West Cardon, t. St. Cleer	0 9 3	4 1/2	4 1/2
30000 West Cornwall, t. c. Cornwall	1 0 0	1 1/2	1 1/2
3000 W. Graven Moor, t. Pateley Bridge	10 0 0	—	—
12000 West Crober, t. Tavistock	0 11 6	6 1/2	6 1/2
10000 West Crober, t. c. Calstock	1 2 0	3 1/2	3 1/2
10000 West Godolphin, t. c. Breage	1 3 6	1 1/2	1 1/2
12000 West Gomonema, t. St. Cleer	0 0 0	3 1/2	3 1/2
20000 West Lisburne, t. Cardigan	1 0 0	3 1/2	3 1/2
3000 West Mary Ann, t. Menheniot	1 13 0	—	—
30000 Westminster Consols., t. Flintshire	1 0 0	1 1/2	1 1/2
20000 W. Pateley Bridge, t. Yorkshire	1 0 0	—	—
12000 West Phoenix, t. Linkinhorne	1 5 0	3 1/2	3 1/2
6000 West Polbarro, t. St. Agnes	0 11 0	1 1/2	1 1/2
5136 West Poideice, St. Day	5 5 6	3 1/2	3 1/2
2048 West Wheal Francis, t. Illogan	39 5 6	7 1/2	7 1/2
3000 West Wheal Pevor, t. Redruth	4 0 0	5 1/2	5 1/2
2400 West Wheal Seton, c. Camborne	19 10 0	5 1/2	5 1/2
6000 Wheal Agar, t. Illogan	19 6 0	11 1/2	11 1/2
6144 Wheal Bassett, t. Illogan	8 19 6	3 1/2	3 1/2
4000 Wheal Banny, t. c. Latchley	5 0 0	—	—
3000 Wheal Bann, t. Redruth	1 3 6	—	—
10000 Wheal Castlet, t. c. St. John	0 0 0	—	—
15000 Wheal Coates, t. St. Agnes	0 0 0	—	—
2585 W. Conf., & No. Tres., t. c. Gwynedd	2 2 0	3 1/2	3 1/2
30000 Wheal Britannia, t. c. Gwynedd	1 0 0	3 1/2	3 1/2
50000 Wheal Elizabeth, t. c. Cornwall	1 0 0	—	—
12288 Wheal Jane, t. Kes	3 3 0	3 1/2	3 1/2
12000 Wheal Jewell, t. St. Hilary	1 0 0	3 1/2	3 1/2
25000 W. H. H. & T. F. & T. F. & T. F.	2 0 0	3 1/2	3 1/2
20000 Wheal Lusk, t. Callington	0 3 9	3 1/2	3 1/2
2000 Wheal Owles, t. St. Just	1 0 0	3 1/2	3 1/2
30000 Wh. Silver & Lanteglos, t. c. Camelford	1 0 0	1 1/2	1 1/2
6000 Wheal Sisters, t. Lelant	4 2 6	3 1/2	3 1/2
4036 Wheal Uny, t. c. Redruth	19 8 6	3 1/2	3 1/2
21885 Wye Valley, t. Montgomery	1 0 0	3 1/2	3 1/2
60000 Yealand Consols., t. Devonshire	0 12 6	3 1/2	3 1/2
4000 Yatwith, t. Cardigan	1 0 0	3 1/2	3 1/2